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Balancing Brain Chemistry: Targeted Individual Amino Acids for Anxiety & Depression

Sean Croxton and Trudy Scott CN

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Sean: Trudy Scott. Thanks so much for joining us.

Trudy: Great to be here.

Sean: Great to have you. Now looking at my notes here, you are the author of *The Anti Anxiety Food Solution*. You worked with Julia Ross for a couple of years. You do your bi-yearly anxiety summit as well. You have a new one coming up in November that we're all excited for. You're a certified nutritionist as well. Why did you decide to go down that road and focus on mood, anxiety, and depression?

Trudy: Well, I was not always a certified nutritionist. I actually come from the corporate world. I was a computer programmer. In my late 30s, out of the blue, I suddenly started to get anxious. I would wake with this feeling of doom and dread and fear and actually had two panic attacks. It was terrifying. I thought I was going to die. I remember that first panic attack where I couldn't breathe I was saying, "I have to get some air, I have to get some air. What is happening?"

I would hear my heart pounding, the clammy skin. It was terrifying. All of it was very crazy because I'm a rock climber. I met my husband on a cliff face. I have done ice climbing. I have spent the night on a border ledge in Zion National Park. I have backpacked through Europe. I have

done all these adventurous things. This fear that came out of the blue just did not make sense. I grew up in South Africa. We ate real whole food. I am a big fan of JERF, Just Eat Real Whole Food.

Sean: Me too.

Trudy: Good. I did not even consider medication. I thought there had to be something going on, because where did this come from? I worked with an amazing nurse practitioner and a naturopath. I've discovered that they were these biochemical components. I had this huge...I call it the perfect storm. Gluten issues, hormone issues, adrenal burn out from working long hours. This was causing low GABA, low serotonin, and poor adrenal function. I discovered this amazing connection between what we put in our mouths and how we feel.

I got on GABA and I discovered I had pyroluria, this genetic condition where you have social anxiety. The nutrients were amazing, completely turned things around. I just thought "this is amazing. I have to just share this with more people." I went back to school to become a nutritionist and this is my path.

Sean: You are doing a great job of it. At 30, did you make any

significant changes to anything? Did you make any changes to your diet? Did you go vegan, vegetarian? Anything like that?

Trudy: I did.

Sean: Oh! OK. You went vegetarian, vegan?

Trudy: I went vegetarian. I was vegan for a short time. That was really really challenging but we were vegetarians for two years. I think that was a big factor as well. We had moved here from South Africa and discovered that you can be a vegetarian and you're getting all these processed soy foods. I hadn't realized how bad it was. I didn't know that it was all genetically modified. I think that played a really big role in damaging my gut and then not eating animal protein.

I'm a really big proponent of good quality animal protein. Grass fed red meat, salmon. Not having that in my diet, I think it was just part of the perfect storm that had an impact. I see a lot of my clients who have been vegetarians get back on animal protein and then they start to feel better. It's a challenging thing because when I was a vegetarian, no one could have said to me, "You need to eat animal protein again." I think we need to listen to our bodies and see how we respond.

That made a very big difference for me, getting that back.

Sean: Doesn't that show you that what you eat has something to do with how you feel and how your mood is? What we are going to talk about today, food as relates to mood, isn't something that is accepted. But it's starting to become more mainstream as time as goes on. What do you think is responsible for that?

Trudy: I wouldn't say it's starting to become mainstream. It's definitely being recognized in our world, in the integrative medicine world. In the mainstream psychiatry, not as much but there is a lot of research. Dr. Felice Jacka is this Australian researcher who has published her first paper in was 2009 looking at anxious women in Australia. She found a very low incidence of anxiety and depression when people were eating a real whole foods diet. That was one of the first studies.

Then there has been a number of other ones looking at the Mediterranean diet and mood. Seeing these correlations...they are correlations. None of them are cause and effect. Interestingly enough, she is actually now doing a study that is happening right this moment in Melbourne, Australia. It is the first double blind placebo controlled study looking at the connection between diet and depression and anxiety which is very exciting.

I reached out to her just before this interview to see if she had any results that she could share with me. She said, "Not yet." They will unblind people in December, so we will know at the end of the year. It is interesting because I think we're going to see positive results. Maybe not everyone because of this whole unique biochemical individuality thing going on here. People who've

got gluten issues may need more than just adding in real whole food. Adding in that real whole food just makes such a really big difference.

Sean: It definitely does. You sent me over a paper published in The Lancet called *Nutritional Medicine as Mainstream in Psychiatry*. Talk about that.

Trudy: This is a paper that her and her colleagues put out just January 2015. It's basically saying, we recognize that lifestyle factors and diet play a role in heart disease and high blood pressure and diabetes. We need to apply those same principles to mental health. She is linking and talking about all the other research that has been done up to now. She has actually founded an interesting organization called INSPIR, International Society for Nutritional Psychiatry Research. I mean, how cool is that? Really amazing.

We've got all these researchers trying to show us what we know. Food has an impact. I think it is very exciting we are getting the research showing it. This is going to make it more acceptable in the mainstream.

Sean: For sure. I have a couple of quotes here in my notes. This is from the INSPIR that you just talked about. "We advocate recognition of diet and nutrition as essential determinants in both physical and mental health." Another one of her quotes, "In our study, out of every single dietary food grouping that I looked at, including vegetables, fruits, salads, beans, et cetera, the strongest correlate of mental health was red meat intake." Grass fed meat though, right?

Trudy: Grass fed red meat. She talks about this a lot when she presents and when she is doing her papers. She says in Australia most of the meat is grass fed, so people are eating good quality meat. I just

want to make a little disclaimer here because when I go out and speak about this, I always say the study was referring to grass fed red meat. Actually when I was presenting at a conference late 2014, there was someone in the audience from Australia. She said, "You do have to look for grass fed red meat in Australia."

It is definitely more prevalent there than here in America but that is the big difference. The difference is the quality grass fed red meat. The great source of omega-3s. We've got the zinc. We've got the Vitamin B6. We've got iron. Iron and zinc are both really important co-effectors for making our neurotransmitters. Yeah, the red meat makes a really big difference. The interesting thing is, she did this paper as part of her dissertation for a PhD. She went into the study assuming that they were going to find that the higher intake of red meat was going to be detrimental. She was very surprised that it was the other way round, which I think is why research is so cool.

Sean: What do you think when you see reports on TV and in the media about how red meat is bad for you and we should not be consuming it?

Trudy: They are not taking into consideration quality. We're not saying, "Well, is it farm raised meat? Is it conventional meat that have been fed corn and have got this high omega-6 profile, they've got the antibiotics and the hormones in them," compared to grass fed red meat which is a totally different thing. We need to think about that. The other thing that we need to think about is the amount of red meat. What she is talking about is a small portion about the size of the palm of your hand. Not a giant piece of meat with two little asparagus. We want a mountain of beautiful vegetables and salad and then a very small portion of the

proteins. I think that makes a big difference too.

Sean: A small palm sized piece every day? Every few days?

Trudy: Per meal.

Sean: Per meal?

Trudy: This would be protein per meal. This could be red meat, or fish or chicken or legumes or some sort of protein.

Sean: You said there is omega-3s in there, zinc. You said iron as well. There is also amino acids, right?

Trudy: All the amino acids. Correct.

Sean: Amino acids. They make our neurotransmitters, correct?

Trudy: Exactly.

Sean: One of our neurotransmitters would be serotonin. Talk about serotonin as it relates to anxiety and depression.

Trudy: We know the serotonin-depression connection. A lot of people will know that. A lot of people don't realize that there's also this anxiety connection. The classic signs that we would think about when it comes to depression and low serotonin is the negativity, the low self-esteem, the full-blown depression. Maybe the winter blues. Those are all classic signs. Suicidal thoughts or behaviors.

Then we have the anxiety side of us. This is the anxiety where it is in your head. Ruminating thoughts, reprocessing things, worry. You can't switch your mind off. A lot of my clients will be in bed at night saying, "I cannot stop thinking that meeting or that discussion I had with someone." They just cannot stop thinking about it.

Sean: Criticizing themselves?

Trudy: Yes. Big critic on the shoulder. You also have the afternoon and evening cravings. With all the neurotransmitter deficiencies you will have this craving, addictive component. With low serotonin, it's afternoon and evenings. Insomnia is a big factor, of course. Then PMS, fibromyalgia, irritability and anger issues. Those all are low serotonin symptoms.

Sean: Got you. Now, serotonin, if I understand correctly, is made out of an amino acid called tryptophan, right? People take tryptophan to make more serotonin. There is also 5-HTP which comes before tryptophan. It converts into tryptophan? Elaborate on all that.

Trudy: There are these precursors that you can take in a supplement form to help you make more serotonin. Obviously you have to get all the food stuff down. Everything that we just talked about, that's important.

Sean: Diet is first. Someone comes to you and they have these problems, you put them on a good diet first. Take out the processed foods and all that stuff?

Trudy: Yes and no. The diet is obviously something that we need to emphasize. In order to take out those processed foods, the gluten and the sugar and the junk food, we often have to use willpower. That will often get the better of us. The interesting thing is, I mentioned this whole addictive component with low serotonin and the other neurotransmitters. If you add in the amino acids at the same time that you are making these diet changes, that makes it a lot easier. It is a lot easier for people to get off the gluten, to get off the sugar.

Some people can just say, "OK, I'm going to eat healthy food." They're going to ditch the junk. They are going to eat healthy food. They are

going to balance their blood sugar. They are going to get off gluten and their mood improves. Just those three things can make a difference. Then there is the next level, where they will make those changes and they cannot stick to it. Or they still have the mood issues. This is where we add in the amino acids.

Sean: Let me ask you. The gluten and the sugar and all the other foods that they are craving, eating those foods, are they getting a high off of them? Are they getting a serotonin boost or something from them?

Trudy: Often more an opiate type boost. If you have gluten for example, there are these components, gliadin, gluteomorphins, which will give you this high. People will feel good when they have had it. Then they will feel bad afterwards. We know that there is a lot of research now showing a connection between sugar and raising dopamine levels. So, yes we are getting that high. We self-medicate with these foods to feel good. In the long term they are causing problems.

We see research showing a connection between gluten sensitivity and celiac disease and low serotonin that depletes us of our serotonin level. We have got this vicious cycle going on. Adding in the amino acids as supplements, short term, maybe a month, maybe three months can really start to get things going.

The best thing about it is that it gives my clients hope. They feel good within the first hour of working with me. I will have them do a trial of these amino acids and they will get results within five minutes. "Wow, I'm feeling more optimistic. I am feeling better." They will often say, "Is that possible? Could it really work that quickly? Is it only a placebo effect? Is it because

I am talking to you that I am feeling so good?" They really do work that quickly if you do them sublingually, initially to do the trial. They really are amazing.

Sean: Somebody is in your office. They are feeling blue. You give them tryptophan sublingually and they feel better. Is that better for ten minutes? Do they stay feeling better for the day? How does that work?

Trudy: It depends. Each person is different. They'll start with the starting dose. For example, with tryptophan the starting dose would be 500 milligrams. That's a typical starting dose. If someone is really sensitive then we may even start less than that. If they say they do not have any sensitivity, I'll have them do the questionnaire. I have mentioned all the symptoms that we just talked about, rate everything on a scale of one to ten. Then I will say, "OK, how are you feeling right now?" Negative is a ten. "I really want some cookies." That is a ten. "I just I hate myself." That is a ten.

Then I will say, "OK, let's have you do a tryptophan." We will open up the capsule; hold it in their mouth for two to five minutes. Within that two to five minute window, we want to see a response. I'll say, "how many notches did it improve?" Went from a ten to an eight maybe in the first minute. Then it went to a six. OK that's pretty good. Then I will send them home for a week taking the 500 milligrams twice a day. You asked how long they will feel good for. If it is the right amount, three or four hours they will feel good. It usually lasts in the system three or four hours.

Sean: Do they take it again?

Trudy: Then they take it again. Each day they will take it. Then you may need to increase. You start at the lowest dose that you were getting

a benefit. Then you would increase it a few days later if you get further benefits. Then you may do that for a few days and then increase it again. If you don't get any further benefits, if you go from one to two to three, then you just go back down to your dose.

Sean: The reason this works again is because the tryptophan is the precursor to serotonin?

Trudy: Yes.

Sean: Correct. Cool.

Trudy: The important thing is that it needs to be between meals. It needs to be away from protein.

Sean: Why?

Trudy: Because it's going to compete for absorption with the other amino acids that you would have in the protein. Tryptophan is particularly an issue with that because it's called "the runt of the litter" in terms of the amino acids. It's in a smaller proportion to others. If you're eating a beautiful piece of grass fed red meat and you take tryptophan at the same time, it's just going to get lost in the shuffle. Doing it in between meals is important. With tryptophan, the dosing is mid- afternoon, and evening. Some people can do it in the morning. It may make them a little bit tired. We may have them try 5-HTP instead.

Sean: OK. From what I understand, tryptophan converts the serotonin, the serotonin converts to melatonin, right? Will this make people tired if they take it in the middle of the day?

Trudy: The reason why we do mid-afternoon is because your serotonin and melatonin are starting to get a dip to get you ready for bed hopefully, unless you've got some issues like high

cortisol and other factors that may affect your sleep. Ideally you should convert to melatonin which is going to help you sleep. If you've got the low serotonin, then you very possibly have the low melatonin which is why you may have sleep problems as well. Taking it mid-afternoon and evening is just getting your body ready. You shouldn't have any issues. That's why I said if some people have sort ruminating thoughts and the worry, the low serotonin symptoms early in the day, we may have been trying tryptophan mid-morning. Just assess and see if it does make them tired. If it does, then possibly doing 5-HTP in the morning and then serotonin in the afternoon and evening can work.

Sean: 5-HTP from what I understand doesn't work for everybody. It also can raise cortisol levels. Talk about that.

Trudy: I like to start with tryptophan because of the whole cortisol issue. If someone is coming in to see me and they're anxious, I don't want to make them more anxious by giving them 5-HTP unless I've done a saliva adrenal test. Or I've seen one and I know that their cortisol is not high. I also get really good results with tryptophan. I just think it's fabulous. A big thing is quality. I only use one brand of tryptophan and if you're OK with me mentioning ...

Sean: Go for it.

Trudy: Lidtke brand. I've got no association with them. The Lidtke brand of tryptophan is just superior quality. I have great results. Some people will buy something over the counter and they're not getting the same results.

Sean: How do you spell that?

Trudy: Lidtke, L-I-D-T-K-E.

Sean: Got you.

Trudy: Its just really really good quality. The question was about the cortisol.

Sean: Cortisol.

Trudy: Cortisol, thank you.

Sean: Yeah. If somebody has low cortisol, depleted adrenal function then 5-HTP would be better for them?

Trudy: It may work for them. There's a percentage of people who do better on 5-HTP and a percentage who do better on tryptophan. We would do the trial, typically start with tryptophan, see if it's working. If we are not getting results, which on occasion that will happen, then we may do 5-HTP in the afternoon and evening after we've checked for high cortisol.

Sean: Got you. 5-HTP is a, I don't know what you call it. In terms of body chemistry it's one step before tryptophan, is that right?

Trudy: Yes.

Sean: It converts to tryptophan in the body?

Trudy: Yeah.

Sean: OK.

Trudy: The interesting thing is, of the amino acids, 5-HTP can be taken with food. I don't ever say that to my clients because it just gets confusing. Then they don't know which one they can do and which one they can't do with food. If you take it with food it doesn't seem to be an issue.

Sean: Do you ever maybe wonder why is their serotonin low in the first place? From what I understand, a lot of serotonin comes from the gut. Do you ever look at the gut function as well?

Trudy: Absolutely. The aminos are just one of the nine steps that I work with. Food is one of them. Gluten is another. Getting off caffeine is another one. The gut is so important because we digest our food. We've got to have good hydrochloric acid status so we can break down this beautiful grass fed red meat into the amino acids. We've got to make sure we don't have dysbiosis. We've seen all of the research about how the flora in our gut can actually make serotonin, can make GABA.

We've got to have good gut function. You're right. We make so much serotonin in our gut. We don't think of that, we think of the brain yet we make so much in our gut. I think this is why we may be seeing a lot of people with a lot of IBS issues. A lot of people seem to be suddenly saying they've got a lot of clients with SIBO, Small Intestinal Bacterial Overgrowth. We know there's this connection between serotonin production and gut motility. If we've got a lot of people with low serotonin, and they've got the gut motility issues ...

Sean: When you say gut motility, you mean stuff is just not moving?

Trudy: Not moving, yeah. Then we get this build up of good bacteria in the wrong place. It's in the small intestine. Then we get fermentation of our carbohydrates. A lot of people these days are going completely grain free. They're getting off gluten. They're getting off the grains as well and they're feeling a lot better.

Sean: Do you ever find a client who you're working with, who you have on 5-HTP or tryptophan but you're also healing their gut and you find that once the gut is healed, they can start backing off their tryptophan or amino acids?

Trudy: Yeah. This goes back to what I was saying earlier. We get on the amino acids initially while we are working on all these other things. That takes a long time, getting off junk food, getting off the gluten in some cases. Getting off the coffee is a hard one for most of my clients.

Sean: Yeah, that's a tough one.

Trudy: That's the hardest one really. Once they get off they're not unhappy that they have quit the coffee but you're right. The gut can take a while to heal. In the meantime, they're feeling better. They've got hope and they're able to make all these changes.

Sean: Are there any major or minor side effects of using amino acids like 5-HTP or tryptophan?

Trudy: As with any nutrient if you have too much of it, you can have a reverse effect. I had a nutritionist colleague try some tryptophan and she burst into tears because she didn't need it. You will get the opposite effect. If you take too much, it could be problematic. That's why doing a trial is really nice, figuring out what your ideal dose is.

If you are very sensitive to supplements...when I worked in Julia's clinic, Carla Marie was the nutritionist there and she called these clients "pixie dust clients." They needed a very small amount. I'll have them actually open up the powder, lick their finger and take a dab. The supplement sheet might say two dabs or three dabs versus the 500 milligrams. It's very very individualized.

Sean: SSRIs. The first S is, no the second S is serotonin. How do SSRIs work differently from the amino acids?

Trudy: They are recirculating the serotonin that you have in your

system. They're not providing the raw materials for your body to make its own serotonin. The other thing with SSRIs are of course the side effects. Those are problematic for a lot of people. A lot of people get on SSRIs and they get marginal benefits, sometimes short term. I won't even go down the side effects. They increase suicidality and sexual dysfunction. It can actually trigger bipolar and manic attacks. They're not great.

Sean: It appears to me that it's obvious that serotonin plays a role in depression and anxiety. Because it works, I've even used amino acids myself. With every summit or Second Opinion series sessions that I do, there's always people who disagree on things. It tends to confuse the audience. They're sending me emails, "well some person said this, other person says this."

I will say, "Hey, take the information and decide what works for right for you." You and Dr. Brogan differ on serotonin. Dr. Brogan thinks that serotonin has nothing to do with depression and anxiety. Tell us more about your thoughts about that.

Trudy: I love Dr. Kelly Brogan. I think she's fabulous. I interviewed her on both of my anxiety summits. I just love her whole philosophy about looking at gut health and inflammation and everything else that she looks at. We do disagree on this point. When I interviewed her I said, "Hopefully one day I can convince you that it is a factor." The reasoning, she says, all the research was done by drug companies and they were saying that low serotonin was a factor in depression so they can push the medications.

I look at those studies and I think great, they're showing that serotonin is connected to anxiety and depression. I just ignore the

drug recommendations. I think we can use food recommendations instead. There's just so much research out there talking about this connection between low serotonin and depression. Think about all the studies looking at inflammation. There is this IDO enzyme that is affected by inflammation. It actually degrades tryptophan and leads to low serotonin.

There's this connection between IBS. A lot of people with IBS, Irritable Bowel Syndrome have anxiety and depression. There is a study showing that we have low serotonin in people with IBS. There's just so much research out there. The biggest thing for me is the results that I get. Seeing clients on a daily basis, getting the results that I talked about. I'll be happy to share one or two stories of some clients if you like. Just seeing their results is enough for me.

Sean: We will get to that in a second. IBS. They're just not producing sufficient serotonin because the gut is dysfunctional. It is not functioning properly.

Trudy: There was a study that actually came out early this year saying that they think there's a genetic component. I'm sure that plays a role as well. If they've got gluten issues, then they may have low serotonin as well. I think there's just so many factors. I mentioned SIBO, Small Intestinal Bacterial Overgrowth and there's all the work connecting IBS and SIBO. I think it all just plays a role together.

Sean: Tell us more about IDO. It's an enzyme that can degrade tryptophan you mentioned, if you don't mind going deeper that would be great.

Trudy: There's a number of studies actually. If you went to PubMed you would find 50 studies probably. Its

an enzyme that they've identified that when you have inflammation... you might see inflammation in terms of looking at a blood test and seeing high c-reactive protein, which is a marker for inflammation. When you see that inflammation in the body, this enzyme is activated to actually break down tryptophan. If you've got any tryptophan in the body, it's going to break it down and possibly lead to low serotonin.

Sean: The inflammation comes first though right?

Trudy: The inflammation comes first. That could be some kind of pro-inflammatory diet. It could be gluten. It could be other factors that could be causing that inflammation.

Sean: If I understand correctly, and correct me if I'm wrong, Dr. Brogan says that it's the cytokine thing. It's inflammation, inflaming the brain that's causing depression. Is she kind of right in there? If the inflammation comes first and that affects the IDO enzyme and that is what degrades the tryptophan, then it was the inflammation that first triggered it.

Trudy: Yes but the inflammation is going to work in many different areas. One of them would happen to be this IDO enzyme. Another one could be causing inflammation in the brain. Another one is affecting the gut, which is going to affect your digestion. Inflammation is just affecting so many different areas of the body.

We've all got our ways that we approach helping our clients. Her approach is changing the diet which is great. It's going to work. It may just take a little bit longer. I say let's change the diet but let's also add in these precursors so that we can help people get to where we want to get to quicker.

Sean: In your experience what percentage of people ever get off of the amino acids?

Trudy: The amino acids, stopping them?

Sean: Yeah. How often are they able to just completely get off of them?

Trudy: Everyone. Most people, unless they haven't addressed the underlying issues. Unless they're not going to get off gluten or they backslide. The other thing is we see a dip in serotonin in the winter time. If someone is prone to *the winter blues* then we want to maybe give them a little bit of a boost in the winter. Maybe extra vitamin D, extra serotonin boost in the winter. Maybe a full spectrum lamp or maybe tryptophan again just because it's a seasonal thing.

With women we see a big hormonal component. There's this connection between serotonin and estrogen and GABA and progesterone. Women may find they need to retune and recalibrate and get on supplements maybe after pregnancy. Maybe when they're going through pre-menopause or menopause. There are times when you may need to get back on it. You shouldn't have to be on it indefinitely.

That is the sort of basic thoughts that Julia Ross talks about. I'm thinking that may not be the case in all situations because we've got these genetic defects. Methylation plays such a big role in making neurotransmitters. The methylation cycle feeds into the BH4 cycle which then makes serotonin and dopamine.

If we don't have enough folic acid or if we've got one of the MTHFR mutations, especially the 129 mutation, that has a direct impact on serotonin. Then we may need

longer term support. We may need tune ups more frequently. I really think it's very individualized. This whole methylation connection is new and exciting. I know you're going to be interviewing someone.

Sean: Dr. Lynch. Ben Lynch.

Trudy: Dr. Lynch is fabulous. I interviewed him on the anxiety summit and he's just great. We've got to take all these factors into consideration.

Sean: You mentioned something in there, light therapy. How does that work?

Trudy: Light therapy is another tool for raising serotonin. I actually had one little guy that I was working with. He could only tolerate a very small amount of tryptophan, 100 milligrams. When we added in the light therapy, that just totally took his anxiety and depression away. People are different. It could be getting outdoors in the sunshine like beautiful San Diego. It could be using a full spectrum lamp.

There's actually a wonderful book called *The Winter Blues* that I just finished reading by Dr. Norman Rosenthal. He's a fellow South African who moved to America. Every winter he got terribly depressed. It took him three years to connect that it was the winter that was causing his depression. This was over 20 years ago. He did this some of the initial research on full spectrum lighting and coined the term together with some of his colleagues. SAD, Seasonal Affective Disorder. He lived it. He discovered it and he shared it which is so cool.

Sean: That's pretty cool. Another thing I want to get into before we move on from serotonin is serotonin syndrome. What is that?

Trudy: We want to take into account if someone is currently

on an SSRI that there maybe this potential issue of serotonin syndrome which means too much. We've got the SSRI re-circulating all the serotonin. We add in these precursors, either 5-HTP or tryptophan to help us make serotonin and we just may end up with too much. There's this term serotonin syndrome where it's too much and you can actually feel worse. If I'm working with someone who's currently taking a SSRI, I have them work with their doctor. Make sure the doctor knows they're going to be adding tryptophan or 5-HTP and monitoring them.

What you want to do is have a 6-hour window from when they do the SSRIs. They would switch the SSRI to the morning with their doctor's permission. Then do the tryptophan mid-afternoon and evening with that 6-hour window. Just make sure that if they feel bad, they stop the amino acids and they let me know and their doctor know.

Sean: Got you. If there's too much serotonin in there, can the receptors for them become less sensitive to them?

Trudy: Yeah that's one possibility. Then also it's tied into this whole reverse effect. Too much is not a good thing.

Sean: Right.

Trudy: We don't want too much of anything.

Sean: Give us a case study for serotonin.

Trudy: A wonderful story is a woman who just went through my group program, "The Amazing Aminos for Anxiety." She had stopped her SSRI about a year before and was miserable. Very depressed, had really bad anxiety, really bad social anxiety and terrible insomnia. She was perfect

to try the amino acids. She did the questionnaires and scored really high on the low serotonin. She had been using an over the counter tryptophan on and off and had seen some benefits but nothing really profound. When she got on the program I said to her, "I recommend Lidtke tryptophan. Let's have you start on 500 milligrams twice a day." The effect was profound.

Within two days of not having any motivation to do anything. Not doing any exercise, she went to the gym and walked on the treadmill. She just was feeling over the moon, really great. She calls tryptophan "my new best friend and I'm not going anywhere without it." She loves it. She just can't believe how great she feels. We did actually increase her amount and she's just a new person.

Absolutely fantastic.

I would have expected that it would help her anxiety and her sleep. It did not. Although she scored high on those symptoms, it only helped with the depression. This is where this whole...we are all unique. Different things are going to affect us differently. I suspect she's got high cortisol which is causing those effects. She's in the process of getting adrenal testing done and we'll be able to figure that out. In terms of her depression, she's just over the moon. She's just so happy.

Sean: Did you say that she was able to get rid of the depression but she still has the anxiety?

Trudy: Yes.

Sean: Could she have had low serotonin, which was taken care of with the tryptophan, but also had low GABA at the same time?

Trudy: She tried GABA. The GABA didn't work for her either. The anxiety could be low serotonin,

could be low GABA. Could also be high cortisol, could also be high dopamine. Could be so many things that cause the anxiety. We've got to just figure what that is and then address that.

Sean: If it was high cortisol, before we get to GABA, what would you do for that?

Trudy: I like a nutrient called Seriphos. It's a phosphorylated serine. It's really great for lowering that high cortisol. You typically take it two hours before the high cortisol and it'll start to lower that high cortisol. There's another nutrient called De-stress which is a hydrolyzed casein or lactium. There's research showing that helps to lower the high cortisol. I found really good results with the Seriphos.

There's a few of my clients that just doesn't work for them. I'll have them try the lactium. The lactium is very helpful if they've got really high morning cortisol. They wake up feeling like they've got this big adrenaline rush. They don't want to wake up two hours earlier and take the Seriphos because its effective a few hours before. That's when the lactium or the De-stress would be good for them in morning time to help lower that cortisol.

Sean: What if someone is casein sensitive?

Trudy: Then you couldn't use that.

Sean: OK. All right. People will know when their cortisol is high by way of their lab results? They will be able to see what time it's high?

Trudy: Yes. You'll do a four time collection of your saliva. It'll measure morning cortisol, noontime, 5: 00 p.m. and 10: 00 p.m. Then you can see what your cortisol should look like. It should look like a ski lift. High in the

morning, going down towards the end of the day. If it's too high in the morning, they could feel anxious. If it's high at night, they could have anxiety. They could also have insomnia.

Sean: Ski lift, I like that. Low GABA, if someone's got low GABA. How do they feel?

Trudy: Stiff, tense shoulders. Tight like they just sitting there in an office. Or if I'm working with them over the phone, they're just feeling really, really tense. There's a physical kind of anxiety in the body, maybe in the gut. Everything just feels overwhelming. Then they are stress eating, either eating to calm down or drinking to calm down.

Got to have a glass of wine, like three in the afternoon they have to have that glass of wine to relax. That's the difference from the low serotonin, which is in the head. GABA is the amino acid which helps to raise GABA. GABA stands for gamma-aminobutyric acid.

Sean: Here's another thing that is going to be differed on in this event. I'm sure Dr. Kharrazian is going to say "If you can feel GABA, when you take it, it means you've got a leaky blood brain barrier and you shouldn't be able to feel it. You've got to work on your blood brain barrier." What do you think about that?

Trudy: I think there's some validity to the connection between leaky gut and leaky blood brain barrier.

Sean: I'm sorry just real quick. That's because the GABA particle is supposed to be, is it too small?

Trudy: Too big to get through the blood brain barrier.

Sean: OK, got you.

Trudy: If you've got the leaky blood

brain barrier then supposedly it can get in and make a difference.

Sean: OK.

Trudy: That's the argument for that. I respectfully disagree. Firstly, personally I've experienced GABA and it was amazing.

Sean: So did I. We've both got leaky blood brain barriers. High five.

Trudy: Or possibly we've got GABA receptors in other parts of our body that's having an impact. That's what I'm saying. We don't want to discount the fact that GABA is going to work. The big thing is when it works, people get results. I interviewed Dr. Josh Friedman on The Anxiety Summit. He said "I don't really care what the mechanism is. People get results. That's all I care about." We really do get results.

There's a lot of research saying that we have these GABA receptors in parts of the body that we wouldn't have even imagined, in the pancreas, in the blood vessels, in our muscles, in our uterus, in our ovaries. We've got these GABA receptors all over the body, in our digestive system.

One paper that came out earlier this year actually said we've got as much GABA in our pancreas as we have in the central nervous system. Who knew that? It's all over the body. The big thing with GABA though is I find a GABA pill swallowed is not nearly as effective as GABA taken sublingually.

Sean: Really?

Trudy: Major difference. I think getting it in the mouth, holding it in the mouth for 10 seconds. I'll do that with a child. I have people do 10 seconds to two minutes when we're trying it. They'll feel great. Then they'll go home and swallow it and it doesn't work. That's why

I'm just having people open up the capsule. There are some forms that are sublingual. I like the over the counter one called GABA Calm by Source Naturals. It's my top one for most of my clients because it's a small amount. You'll often find 500 milligrams, 750 milligrams. It's often too much.

The GABA Calm is 125 milligrams. It's a small amount. It's sublingual. Because you're sucking on it, it gets in through the blood vessels in the mouth and into the body very quickly. If they take a capsule, I'll have them open it up. There's a very nice one that I've been using in the last year. It's a combination of 200 milligrams of GABA and 100 of theanine. Theanine is another calming amino acid. That combination held in the mouth is just amazing. People just, you'll just see them go, "ahh, I just feel relaxed." It works as quickly as I've described the tryptophan works, within a few minutes.

Sean: Let's say they take the combination GABA/theanine and they don't feel anything. They should take more the next time they try? Or they should wait so long before they try more?

Trudy: Yeah. If we're sitting here and you've got a bit of stiff and tense muscles. I say let's have you try the starting dose. You try it and don't feel anything. OK, let's wait five minutes, let's take another one. OK, yeah, maybe I'm feeling something, then I'd say let's wait a little bit. Then it went down from maybe a 10, stiff, tense and overwhelmed to maybe 8/9 let's try another one. Then we'll know what the dosage is. Then you'd go home and take that amount for the next week. I usually give my clients a range.

Start with two and you could try three after a few days. I like to do them individually. That's a really big

thing with the aminos when you're trying them, is to do them one at a time. Give it a week. Give it at least a week so you can see what's working. Then you'll know that this is the only thing that I'm changing. This is having an effect.

The second thing is taking individual amino acids. There's a lot of great supplement companies making great products with combinations of GABA and magnesium and B6 and niacinamide and 5-HTP, even all in the same supplement. The problem with that you can't raise or lower the amount of the amino acid very easily without getting mega amounts of these other nutrients in there. Doing them as individuals, I just found works really, really well.

Sean: If you're taking GABA, do you ever get to the point where you've just built up enough GABA you don't have to use it anymore?

Trudy: Yep same thing.

Sean: OK.

Trudy: Do it short term until you've got the benefits. Then some people who are prone to low GABA may use GABA when they're going to a presentation or when they fly. They may need it.

Sean: That's what I need when I'm flying.

Trudy: There you go.

Sean: Under my tongue.

Trudy: There you go yeah and so many people get prescribed benzodiazepine when they fly.

Sean: Yeah that's our next topic. Xanax, right? Valium, that type of stuff. No good?

Trudy: No good. No one should ever take it. I'm a proponent of nutrients and food. Yes, some

people need to get on serotonin and selective serotonin re-uptake inhibitors, the SSRIs. I honestly think no one should ever take a benzodiazepine or ever be described a benzodiazepine.

Sean: Because they're addictive?

Trudy: They are addictive. The withdrawal process is absolutely horrendous.

Sean: What's it like?

Trudy: Brain zaps, more anxious.

Sean: Brain zaps?

Trudy: Yeah like electric shocks in the brain.

Sean: I actually read about that before I stopped taking Paxil. Fortunately I didn't get anything.

Trudy: Didn't? You're very lucky because some SSRIs can cause pretty bad withdrawal effects and Paxil is one of the bad ones. You're very fortunate that you didn't have any.

Sean: I'm very lucky. What else?

Trudy: Someone who was prescribed benzodiazepine for pain, and two months later they started having anxiety and panic attacks. It can actually cause anxiety and panic attacks. Weird symptoms. I'm working with someone at the moment who's tapering. She has these urinary tract infections. The doctor says it's got nothing to do with the benzodiazepines. You get on the benzo forums that people are on, trying to get support because the doctors don't believe that the symptoms are related to the withdrawal from the benzodiazepines. They'll say "Yes, it's very common to get these kind of symptoms." Anything that's unusual, that's chronic, dementia. They call it pseudo-dementia.

Sean: Really?

Trudy: They can't think. They can't process. A lot of people's lives are totally ruined by it. The unfortunate thing is they're not told about this when they're given the prescription. When they go back to the doctor and they're more anxious, they're told to take more. The doctors are not recognizing that this is a really big problem.

Sean: I have a quote from Dr. Pittman. What's Dr. Pittman's first name?

Trudy: Dr. Catherine Pittman.

Sean: Catherine Pittman. "Benzodiazepines can cause physiological dependency in four to six weeks." There's something called the Ashton Protocol from Heather Ashton. Talk about that.

Trudy: A doctor in the UK came up with this protocol on how to do the taper. She lists Xanax, Valium, Ativan, the different benzodiazepines and give you the actual protocol on how to taper. It can be from six weeks to three months that you need to taper. She will tell you, "on this day take this amount. Four days later get a razor and shave that much off."

What she actually recommends is to try and get a prescription to Valium. Transition from whatever you're on to valium and then taper that. That seems to be more effective to taper. The important thing is for anyone listening is don't stop cold turkey. You've got to do that very, very, very slow taper.

Sean: Julia Ross said that a missing piece of it is they're not using GABA with the protocol as well as high doses of vitamin C.

Trudy: Yes, definitely. Supporting someone nutritionally while they are tapering is a really great thing.

The problem also is that a lot of people who have been damaged by the benzodiazepines are super sensitive. You have to be very careful. Sometimes they just need very small amounts.

Sean: Start with very small amounts of GABA. What about the vitamin C?

Trudy: I would say anything. Start really small with anything and just see how they're doing. Also one thing at a time. If that doesn't work don't say, "Well, that's impossible." It's very possible.

Anything is possible. It's quite hard to work with someone who's trying to taper on the benzos because you don't know if it's the aminos not working or is it the benzos causing those effects. It's really muddled waters.

Sean: Got you. I'm sure there's lots of people out there who are wanting to see some evidence. Wanting to see something on paper as to where their levels of serotonin and GABA levels are. I've had a few people on my radio show talk about neurotransmitter testing by urine. What do you think about that?

Trudy: I'm not a fan of it. I first learned about it and heard Julia Ross talk about the fact that she wasn't a fan of it. Her clinic, before I was working there, they had people come in with the results. It didn't correlate with the questionnaire. This amino acid questionnaire looks at serotonin and GABA and catecholamines and the endorphins. The results just don't correlate often enough. Then we hear about people who had the testing done, got on the recommended protocol and felt worse.

Since then, I've heard many people say that they did that test, they got on this protocol and they feel worse. It just doesn't seem consistent enough. I've conversed

with other practitioners to get other people's input. They said yes it sounds great because we love to test. We love to get results but something that is not consistent enough, I just don't think we need to do that. What you could do instead is use the amino acid questionnaire and do the trials and see what your response is. That's the most powerful way.

Sean: The questionnaire. Has that been developed over a long period of time? It's like the gold standard questionnaire?

Trudy: It evolves. Julia Ross put these questions together. As she worked with clients, it evolved. When I left her practice and started my own practice I added comments in there based on feedback

I was getting from people. Some people don't relate to the term "I'm depressed." They would rather say, "I've got this critic on my shoulder." We've added some things in there to make it more user friendly. I have to give credit to Julia Ross. She's the pioneer in this area. I learned so much working with her. Using that questionnaire is just amazing. Then, how do you respond to the nutrients?

Sean: Neurotransmitters, if I understand correctly are produced elsewhere in the body right? If you're doing a urine test, it's not just what's coming out of the brain. Correct?

Trudy: Yeah.

Sean: I have a quote here from Nora Gedgaudas, who's another of our presenters. She said, "Neurotransmitters and their precursors are produced in abundance throughout the body. To assume that what is collected in the urine reflects what's going on in the brain is a stretch."

Trudy: Exactly. Also, going back to what we talked about earlier, we've got all the serotonin in our gut. We've got this microbiome producing serotonin and GABA. It's not a strong enough correlation. There is platelet testing that you can do. I don't do it very much, but it's available. It's measuring serotonin in the platelets. That seems to correlate more strongly with the cerebrospinal fluid. You could also do regular blood testing of serotonin. It's a marker. It's helpful but it doesn't seem to be good enough.

I just find there is much more useful testing to do. I like to do adrenal testing. We like to see food intolerance testing. Stool testing possibly, which is going to give you specifics. Why spend money on testing? Why have the clients spent money on testing that's not going to be that accurate when there's these other things that do the same function, using the questionnaire?

Sean: Is it helpful to coach the client on their outlook on life and interpretation of things? I know that's something that has been very helpful for me. I have that negative self talk in my head. It got to the point where I talked to myself. "That's not true." It's kind of unwinding my negative self talk. Do you do any of that with your clients?

Trudy: I do it but I'll recommend people that they can work with. To me, I think that everything you can do to try help someone is fabulous. I just think, I see a lot of people who've been doing it for years and years. If they're not getting to their biochemistry part it's hard work. Some people have to keep doing that. Every day they have to keep doing it. To me it seems like a lot of work when, yes it's working but let's also address the biochemistry. Then it just becomes much easier.

Sean: I was using Paxil because of social anxiety. I still have a little bit

of it today. I don't like big crowds. I can speak on stage in front of hundreds of people and be totally cool. As soon as I come off that stage and people start coming to me, trying to talk to me I'm like, "I have to go. Where is the exit door?" You have something called pyroluria? Talk about what that is because I think I have it.

Trudy: Well, firstly I think it's amazing to hear you say that. A lot of people will say, "You've got social anxiety?" They can't believe it. I have the social anxiety condition called pyroluria. It's a genetic condition where you've got this higher need for certain nutrients. It's very common in the autistic community. It's very common in alcoholics. It's very common in other mental disorders.

Basically you need higher levels of zinc, vitamin B6 and evening primrose oil.

It's made worse by stressful situations. That could be speaking on stage or the fact that you're now going to have to mix with a whole bunch of people. It could be gluten intolerance. It could be something going on in your gut. It could be just life stresses. Any stressful situation will make you deplete your levels of zinc and B6 much quicker than the average person. You end up with really, really low levels. When you've got this pyroluria, you dump zinc and B6 when you're stressed.

Sean: Give us a nerd version of it. The HPL enzyme?

Trudy: There's this HPL component that attaches to the zinc and the B6 and gets dumped in the urine. You end up with low zinc and B6.

Sean: Does that happen with everybody? Does everybody have HPL and is dumping it out or just more with people ...

Trudy: More with people with pyroluria.

Sean: OK. That depletes the ...

Trudy: The zinc and the vitamin B6.

Sean: OK, cool. How did you find out that you have this?

Trudy: When I started having my anxiety, I was in my late 30s going through peri-menopause. It was one of the factors in this perfect storm. I suddenly got this really bad social anxiety. When I think back when I was a kid, I used to push through and deal with it. A lot of people with social anxiety will push through and deal with it because you have to. You have to get out and do things. When this was all going on, I just didn't want people to come visit. I just didn't want to go out. I just felt isolated.

Sean: Like "leave me alone."

Trudy: Yes, "leave me alone. I just want to stay at home." I had terrible PMS. I actually had PMS for three weeks out of the month. I was a total mess. It was really, really bad. I read Ann Louise Gittleman's book. She's one of my other heroes. She's got a book called *Taking Charge of Your Peri-menopause*. Her book said zinc, vitamin B6 and evening primrose oil for hormonal balance and for PMS. I got into those nutrients.

That really helped the PMS. Lo and behold the anxiety went away. Then later on I worked in Julia Ross's clinic and she talked about the pyroluria questionnaire. We had all the clients do the questionnaire. I did this questionnaire and I thought, "this is me." That's why the zinc, and the B6 and the evening primrose oil worked.

Sean: The HPL enzyme dumps out zinc and B6. Why the evening primrose oil?

Trudy: The interesting thing about the evening primrose oil it's an omega-6. Often if you've got mood problem, you should take omega-3. A lot of doctors would say everyone should be on omega-3. I disagree with that one as well. I've got some pretty strong opinions.

Sean: Give them to us.

Trudy: There is research supporting this. People with pyroluria are able to extract the omega-3s from the food that they eat. I've seen this in fatty acid testing results with hundreds of people with pyroluria. We can extract omega-3s from our meat, from our fish, from leafy green vegetables, from walnuts. We don't need to supplement. Supplementing with the omega-3 is going to actually end up with too high levels which then is going to affect the cell integrity and affect immunity and everything.

We have this higher need for this form of gamma linolenic acid, which you get in evening primrose oil. They often need to supplement. I've seen that on fatty acid tests. The other thing is the GLA or the evening primrose oil enhances zinc absorption. You're getting that benefit there. That combination is great. I do also like to recommend a good multivitamin so you're getting some manganese, you're getting some of the other nutrients that you will see in a multi vitamin.

It should be copper free. We've got this balance between zinc and copper. When you've got low zinc, we can have high copper. We can feel more anxious when we've got high copper. For people with pyroluria, having any supplement with copper in it is negating the effects of taking a zinc supplement.

Sean: Look at your multi vitamin and make sure there's no copper in there. Make sure there's no copper in your zinc.

Trudy: Then some people I have to educate them about other sources of copper. Ann Louise Gittleman has written another great book called *Why Am I Always So Tired?* She talks about the fact that we have high copper levels. Vegetarians have very high copper levels. Tofu is high copper. Nuts and seeds are high copper. I'm concerned in the GAPS community where a lot of people are baking with nut flours. You're getting way too high levels of the copper from the nuts. That can be problematic. The copper IUD can be a problem for some people. For some people, looking at all these sources of copper have to be addressed.

Sean: You know what's funny? The symptoms of pyroluria sound exactly like introversion. That's my thing. If I'm out with the guys at the bar and I'm just feeling a little weird, I'm just like, "I'm an introvert. I'm going to go home." You were an introvert, right?

Trudy: Yeah.

Sean: Or you still are? Is it something that people can cure by way of this protocol?

Trudy: Absolutely.

Sean: Really? I don't have to be an introvert anymore?

Trudy: No. I have to just take a step back because a lot of introverts will say to me, "don't try and cure me, don't try and change me, I'm quite happy the way I am." Because some people just love to be at home, be with one or two friends, not big crowds, not typically networking and interacting.

They enjoy that. A lot of introverts are very defensive. "I'm fine the way I am." But there's a lot of introverts who, because of their work or whatever they do, they have to go out.

They maybe have to be in work meetings. They have to go network. They have to be at functions. They will go and do these things, and they'll feel so uncomfortable. They'll force themselves. I've read blogs and comments of people saying "I feel anxious, I just wish I could change that anxiety around being around people." They'll actually extrovert. There's a verb that they use, they'll extrovert.

They'll go there and they'll put on this brave face and they'll talk and no one will realize how uncomfortable they're feeling. That's what I was feeling. I would force myself and think, could anyone see how bad I'm feeling? You imagine that they're going to catch you on it. When I saw this Huffington Post article of these 23 symptoms ...

Sean: I had all 23.

Trudy: You did?

Sean: The whole thing was like Sean, yeah. Crazy.

Trudy: Crazy. I looked at this and I thought, "huh, this sounds just like pyroluria." I wonder if someone with these symptoms who calls himself an introvert gets on this new trend and feels better. I did a blog post. I had the pyroluria questionnaire and an introvert questionnaire. I invited my community to comment. Now it's one of my most popular blogs on my website. People say, "I've got all the pyroluria symptoms, I've got all the introvert symptoms." There is definitely a connection. We know that they get on the pyroluria protocol and they say, "I don't feel like an introvert anymore."

Sean: I'll be the life of the party.

Trudy: Yeah. We talk about introversion as being a personality trait that we are born with. Maybe we're just born with this genetic

predisposition or this pyroluria. It's a genetic thing and it's a biochemical thing.

Sean: I can't do the crowds.

Trudy: Over 50% of the population apparently has introversion.

Sean: They've been told they can't change it.

Trudy: Yeah.

Sean: But they can if they want to.

Trudy: They're told, "use these behavioral techniques, use these things to make you feel better, or just stay home and just do the things that you feel comfortable with." If you are going out, you have to function in the world and you're feeling uncomfortable, why not try to do something about it?

Sean: Go out to the store. Get yourself some zinc, some B6 and some evening primrose oil. Make sure there's no copper in there, you're good to go. I want to get into that protocol. First with zinc. A lot of people might go to their doctor and the doctor ran all of the panels and found that they weren't low in serum zinc. Does that mean they're out of the woods?

Trudy: No. Zinc is a really difficult nutrient to test for. I may even have some people do a SpectraCell test which is another way to test it and it doesn't seem to correlate. I will use the pyroluria questionnaire as my guide. I will use the zinc taste test, which is zinc sulphate.

Sean: How does that work?

Trudy: You hold the zinc sulphate in your mouth, about a teaspoon for 10 seconds. Think about what it tastes like when you first put it in your mouth. Then how does it taste over the next 30 seconds? Then you swallow and you decide how it

tastes. There's four different levels. Level one is just like water. No taste at all, just like water. You don't get anything.

Sean: Does that mean you're deficient?

Trudy: It means you're very, very deficient.

Sean: OK.

Trudy: Level two is like water initially. Then you're getting a dry, fuzzy, very sweet mineral something. Just maybe a little bit dry, not very pleasant. That means you're still deficient. Level three is it's bad initially and it gets worse. T would probably be OK. You probably are going to be able to get away with zinc and a multi vitamin with that. Then level four is what you're aiming for. It should be so disgusting that you cannot hold it in your mouth. You should have to spit it out immediately.

Sean: How often do you see that?

Trudy: Never.

Sean: Never.

Trudy: Zinc has a common deficiency across the board whether you have pyroluria or not. Depleted by stress, by exercise and sugar. It's a pretty common deficiency. I think it's underrated as being a very important nutrient. We are seeing research now directly correlating low zinc levels with depression. Some studies actually show that zinc added to an SSRI can make them more effective. I'd rather just use the tryptophan and the zinc. There's more research. I think we are going to see an upsurge in zinc research like we've seen an upsurge in vitamin D research for example.

Sean: Got you.

Trudy: It tastes really bad, that's a good sign. Very unusual to see that. Mine tastes like that because I'm supplementing. Once you start on the zinc supplement, you should test each week. You should see it getting worse and worse and worse. These are therapeutic levels of zinc. In a multivitamin you might see five, eight milligrams of zinc. I will start my clients on 30 milligrams of zinc. Then go up to 60 milligrams and occasionally 90. Usually 60 milligrams.

Sean: One thing I have to ask you, sources of zinc. I know it's oysters, what else?

Trudy: Mussels. Fish is a reasonable source. Red meat, fantastic source. Nuts have some but they've also got the copper. In terms of nuts and seeds, pumpkin seeds are one of my favorite because their ratio of zinc to copper is less than some of the others, so you're getting more zinc. There's actually research... you might enjoy this one. There's research looking at a functional food that was made with pumpkin seeds. They found lower social anxiety in the people eating this functional food and less insomnia. They've attributed it to the zinc and the tryptophan in the pumpkin seeds.

Sean: OK, so more pumpkin seeds for me. I like oysters and mussels.

Trudy: Pumpkin seeds are great for men too. Zinc and prostate health are really important. It's going to help balance your blood sugar. I'm a big fan of pumpkin seeds.

Sean: Put it on the shopping list. Vitamin B6, what has that got to do with dreams and recall and all that stuff?

Trudy: One of the signs of pyroluria is poor dream recall or nightmares. If you're not remembering your dreams or you're having these

nightmares, it's a classic sign of low vitamin B6. Once you get your B6 levels up, your dreams will start to come back. Then you'll know that you've got enough.

Sean: Got you. Zinc 30 to 60 milligrams, vitamin B6 about 100 milligrams. If the vitamin B6 doesn't work very well, you recommend P-5-P, 25 milligrams. What is that?

Trudy: P-5-P, pyridoxal phosphate is the active form of B6. If the pyridoxine, the regular B6 is not working, we start at 100, go to 200, 300, 400, 500. If that's not working, and the dreams aren't coming back, then I'll switch to the P-5-P which is the more bioactive form. It's more expensive so that's why I like to start with the regular B6.

Sean: Got you. Again, I know the viewers are going to ask this. Zinc, 30 to 60 milligrams. Vitamin B6, 100 milligrams or P-5-P at 25 milligrams. Evening primrose oil at 1300 milligrams. Plus a good multivitamin with manganese and no copper and a multi mineral and sometimes additional magnesium. You mean the multi minerals that are in the multi vitamins or is that a separate thing?

Trudy: It could be separate. Yeah.

Sean: OK. What do you recommend for that? You can give us a brand name, that's fine.

Trudy: Designs for Health has a great multi mineral.

Sean: OK. Then additional magnesium?

Trudy: Magnesium malate chelate is a good one.

Sean: OK, perfect.

Trudy: I wanted to just clarify the B6. Its 100 milligrams to 500 milligrams. The important thing

with B6 is you want to make sure you don't get the tingling in the extremities. Too much can cause peripheral neuropathy which is the tingling in the fingers or the toes. If that's the case, you just back down and it's totally reversible.

Sean: Trudy Scott, this has been really good stuff. What's the big take away here? What are your closing comments?

Trudy: I think it's really important to realize that what we've talked about today in terms of neurotransmitter deficiencies and pyroluria is one piece of the puzzle. It may be your piece of the puzzle. It may be what's going to solve your issues. It may be part of the puzzle. I just think looking for your answer to figure out what is your issue is important. Knowing that there is an answer out there if you've been looking for a long time.

A lot of my clients have been looking for years, they just haven't got answers. Knowing that there is an answer out there and it's a matter of looking for the answer. Realizing that we all have our unique biochemistry and you've got to tailor this to your unique needs. The fact that if you don't need these amino acids, the great thing is, you're taking them for months and months.

Within a week, within two weeks, you're going to know "I don't need tryptophan." Looking for the answers, having hope and realizing that you deserve to feel your absolute best all the time. So many

people just tolerate not feeling great. They hide away, they cover it up, they force it. There is an answer out there. We can feel really great. We can feel on top of the world.

Sean: Life is too short to feel bad. You've got a program. You've got some free gifts for our audience as

well. You've got a 6-week program called Amazing Amino Acids for Anxiety. Tell us about that.

Trudy: It's a 6-week program where you get to try a different amino acid each week. Like I said, you want to give yourself a week to try it out. This way you get hand holding through it. How to take it, when it to take, things to look out for, other lifestyle factors. They will do serotonin. We'll do GABA. We didn't talk about the low catecholamines today. We didn't talk about lower endorphins and we didn't talk about glutamine. Those are all part of it. You just get hand held all the way through so you can feel your absolute best.

Sean: Where can they find out about that?

Trudy: They can go to my website and find out, get the program on the website.

Sean: That's going to be anxietynutritionalsolutions.com.

Trudy: Yeah.

Sean: Got you. You've also got some free gifts for our audience. You've got an amino acid anxiety mood questionnaire that we've talked about a lot during this talk. The pyroluria questionnaire, it's more than 15, right?

Trudy: Yeah, there's 36 questions.

Sean: If you check "yes" to over 15 of them you've probably got pyroluria?

Trudy: Yeah.

Sean: We've also got some of the highlights from your interviews from the Anxiety Summit Season One with Julia Ross, Dr. Kelly Brogan and Dr. Felice Jacka. You've got an anxiety summit coming up soon in November. Do you know who's

going to be presenting at that one?

Trudy: Wait and see.

Sean: Wait and see. The audience can get those gifts already, anxietyfoodsolutions.com/anxiety gift. We will put it somewhere on the picture here. Trudy, this has been fantastic. Thank you very much.

Trudy: Thanks so much for having me. I look forward to hearing the rest of the great interviews. It's just been a pleasure to share this information. Thanks Sean.

Sean: Thank you.



The Brain-Belly Connection

Jonny Bowden and David Perlmutter MD, FACN, ABIHM

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The purpose of this presentation is to convey information.

It is not intended to diagnose, treat, or cure your condition or to be a substitute for advice from your physician or other healthcare professional.

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Dr. Jonny: Hey, everybody. This is Dr. Jonny. And today I'm really excited to be talking to, actually, one of the people I most admire in the entire field, David Perlmutter.

Now, if you don't know David Perlmutter, which I think is very unlikely for this audience, he is a board certified neurologist. He's a fellow of the American College of Nutrition. He's an associate professor at the University of Miami Medical School.

And a lot of people think somebody like David just sort of springs from the head of Zeus. I live in L.A. A lot of actors, they have a big movie, and you say, "Oh, where did he come from? He's an overnight success." I've been reading and studying David's work. I'm going to embarrass you for a second here. See if the camera gets this book. This book, how old is this, 15 years ago? And you look 20 years old here. You look like you're 20.

So David has actually been in the forefront of functional and integrative medicine, at the cutting edge of this stuff, for so long. And I've heard so many presentations of yours. And they're just so impressive. And with all these interviews, we didn't do any preparation. There were no questions sent. His publicist didn't send me a list of questions. I've just got what I think is what people

would want to ask you if they were lucky enough to have a half an hour with you. So I'm just going to jump in.

Dr. Perlmutter: All right, the lightning round. Here we go.

Dr. Jonny: The lightning round, exactly. Now, because this is a summit about metabolism and fat loss, I'm going to try to bring some of this stuff back to that. But of course your specialty has always been the brain. So let me just start by asking what is the connection between the brain and the belly? Where does it come in? How does the brain actually impact the ability to lose weight, the ability to lose fat, and metabolism in general? What's the connection?

Dr. Perlmutter: Well, let me just take a step back before we talk about the brain's ability to help us with metabolism and help us lose weight and recognize that, again, as you mentioned, I'm a neurologist. And my mission in life is not to try to cure neurologic disease. But really my mission is to keep them from happening in the first place.

And that's how I circle back to your question because we see a direct relationship between the size of the belly measured in terms of waist to hip ratio and also correlated to body mass index, I might add, to the degree of shrinkage of the brain's memory center. This was published in the Journal of Neurology put out by the American Academy of Neurology.

So that the bigger the belly, the smaller is your hippocampus. And clearly the size matters when it comes to your hippocampus. People argue about other parts of the body saying size doesn't matter. But when it comes to your hippocampus, there's a perfect correlation between memory function and size of the hippocampus.

So we know that this is an important correlation. The bigger your belly, the more shrinkage of your hippocampus you have. So in terms of this relationship being relevant and being important for me as a preventive individual, preventive neurologist, it really is fundamental.

So we then have to ask ourselves well what are the key players here in terms of making that belly big in the first place? Why do we store fat in the belly, visceral fat? And I am certain that you are covering with other people you're interviewing the primal role of visceral fat in terms of enhancing inflammation.

But the real issue that we're focused on these days is the relationship between the changes in the gut bacteria, the human microbiome, and risk for putting on those pounds in the belly, then down the line for me risk for dementia, shrinkage of the hippocampus.

So I think that makes a powerful connection, then, between brain health and disease and degeneration in general and the gut bacteria. I mean that seems like a

very big stretch, relating the gut and goings on in the gut to risk for brain disease.

But it's through the intermediate step of a bigger belly. And we now clearly recognize that changes in the gut bacteria have a huge role to play in enhancing an individual's risk for not only making fat but storing fat and locking that fat up and making it unavailable for being burned or being used as a caloric source.

And incredibly, these issues relate to some really popular dietary choices that people are making today, not the least of which is our incredible usage of artificial sweeteners, which, incredibly, change the microbiome to such a degree as to pave the way for not only obesity but type 2 diabetes as well. So I just want to emphasize what I just said. The very foods that people are eating in hopes of losing weight and getting rid of that big belly, the artificially sweetened foods and beverages, are actually dramatically associated with increased risk for obesity, as well as a dramatic increased risk for becoming a type 2 diabetic.

Why does it matter to me? And why does it matter to the viewers of this interview? It matters a whole heck of a lot because if you become a type 2 diabetic, you have quadrupled your risk for Alzheimer's disease. And currently that is a disease for which we have no treatment.

So I guess this is the short answer to your question why in the heck am I interested in body fat. I'm interested in body fat because it is not only a marker of inflammation, but it is actually, as well, an instigator of inflammation. It's not just a neutral innocent bystander storage of calorie depot. It is actually a very active organ in the body and dramatically involved in

the production of what are called inflammatory cytokines that then go on to prove damaging to the brain. When we recognize that things like Alzheimer's, Parkinson's, multiple sclerosis, autism, depression are fundamentally inflammatory issues, then the notion that body fat related to inflammation in terms of playing a role in my specialty, neurology, really gets a lot of substantiation.

Dr. Jonny: You mentioned Alzheimer's, which will take me down about ten different rabbit holes. But one of them is this. We're hearing Alzheimer's called type 3 diabetes a lot, which I think is a recognition of maybe some similar causes, some similar relationships with blood sugar and insulin. Could you address a little bit about that?

I think a lot of people who have struggled with weight and fat loss are familiar with insulin and its role as a fat making hormone and the role of blood sugar in keeping that under control because it drives insulin up. But I think this notion that Alzheimer's is a kind of type 3 diabetes has not yet broken through to the public. And it might be a great way to address this relationship between body fat, blood sugar, insulin, and the brain and fat loss. Could you talk about that for just a minute?

Dr. Perlmutter: Well, absolutely. So brain health is intimately related to sugar, glucose, and insulin activity. A study published in September, 2013, in the *New England Journal of Medicine* actually followed a group of about 6000 individuals over a period of up to seven years and found that those individuals at the beginning of the study who had even slight elevation of their blood sugar had a significantly increased risk for becoming demented.

And these are levels of blood sugar that are nowhere near what we

would define as prediabetic or even certainly diabetic. These are levels of 105 and 110, where typically a doctor gives you a pat on the back and will say, "Hey, don't worry about it. Maybe you should exercise more and drink some diet sodas instead of sugar sweetened sodas." I almost make fun. But in reality, that's what happens. But what this really powerful study in the *New England Journal* demonstrated to us was that even subtle elevations of blood sugar were associated with an incurable disease. And that is Alzheimer's disease.

So I think first we need to redefine not what is normal in terms of blood sugar but what is optimal, and recognize that the brain is absolutely a target organ of even subtle elevations of blood sugar, perhaps being more involved with negative reactions to blood sugar than any other part of the body. I mean diabetics are at risk for kidney disease, for example, eye issues, because their blood sugars are so high.

But now we're seeing evidence published, again, in the *New England Journal of Medicine*, clearly pointing the finger at even subtle elevations as being profoundly detrimental to the brain. Indeed Alzheimer's has been called type 3 diabetes because of the relationship of brain metabolism to sugar, to insulin, insulin resistance, I think, more importantly, insulin like growth factor as well.

And I think that it's a very intriguing term because the more it gets out there - you're right, it's not really well known in the public arena. But the more people can make that connection between diabetes 1, 2, or 3, however you want to call it, and the brain, the more they're going to relate sugar and dietary issues to the brain, as they should because we have been bamboozled over the past 30 years into thinking

that somehow dietary fat was our enemy to some degree.

And that when that all happened and we began eating low fat and no fat foods, then by default we bumped up our consumption of sugars and carbohydrates to fill in the blanks in terms of caloric availability. And that has been our undoing. If you don't believe it, just walk around in a public place, a shopping mall or an airport...

Dr. Jonny: Disneyland.

Dr. Perlmutter: ... and get a good sense as to what the cross section of western cultures looks like. And it's very, very distressing. So that said, this is the relationship, then, between, again, getting back to body fat, which is stored in the presence of elevated insulin.

Gary Taubes has done such a wonderful job in terms of raising the public awareness about the role of insulin, not just to pack away blood sugar when your blood sugar's elevated but also, perhaps, more from an evolutionary perspective, that secretion of insulin has allowed us to survive because it allows us to make and then store body fat.

Traditionally, as hunter-gatherers, we would not eat sugar because it wasn't available except for a very brief window in the year, in the late summer, early fall, when the fruit, the blueberries, if you will, would ripen. And we, with our natural sweet tooth that we all have, would gravitate to eating things like blueberries and other berries because they were sweet.

And that would stimulate, because of their glucose content, our bodies to make insulin. And what did insulin do? It caused us to store fat. We made it through the winter. And we're here today having this conversation. But the problem is

that that mechanism is in operation in individuals today who are eating sugar 365 days a year. And that mechanism for fat storage is operant for the winter that never comes.

So we're packing calories away for no good reason in the form of fat and then again recognizing that this body fat dramatically enhances this whole inflammatory cascade, which is bad for the brain, bad for the heart, bad for the immune system, and certainly bad in terms of leading to diabetes, with its issues as it relates to the brain.

The bottom line is we've got to reconnect with the science that lets us understand that you can power the brain with fat. As a matter of fact, you can power the brain extremely efficiently with fat, creating more ATP molecules and creating far less damaging free radicals as compared to when the brain is burning carbs. This notion that the brain needs sugar therefore you have to eat the carbs each day is beyond utter nonsense.

Does the brain burn glucose? It does. But to say that the brain has a preferred fuel is a little beyond anthropomorphism. It's biochemically inappropriate. If the brain should prefer a fuel because it's the best fuel in terms of efficiency and protection and longevity, then it would be burning fat.

Dr. Jonny: Well, I'm so glad you brought that up because it was really going to segue right into what I wanted to talk about next, which is the dietary recommendations of the past 40 years, which we've talked about and which I wrote about in *The Great Cholesterol Myth*, are really based on a horrendous fear of fat, specifically saturated fat, largely because we believe saturated fat raises cholesterol.

And cholesterol causes heart disease. And of course if that

hypothesis is not true, the dietary recommendations crumble like a house of cards. You have done so much to kind of help rehabilitate the reputation of fat, including saturated fat. So I want to ask you, you mention in the latest book about a 2013 study showing that elderly people that add more fat to their diet actually had better cognitive function, more resistance to cognitive impairment and dementia and Alzheimer's.

And this is directly related, I think, to dietary choices for weight loss because so many people have been on low fat diets in a misguided attempt to lose weight, and labor under the misconception that eating fat actually makes you fat. So let me ask you this outright. Is saturated fat bad for us?

Dr. Perlmutter: No.

Dr. Jonny: Good. I'm so glad to hear. When you wrote that in *Grain Brain*, I did a little cheerleader yippee with the little click of my heels because as a nutritionist taking a kind of a contrarian stand for all these years, the most we've been able to kind of say is maybe it's not as bad. Maybe it's a little neutral. And you actually came out and said screw this pussy footing around. Saturated fat is good for you. It's good for the brain. We've been completely misled about it. So I would love it if you could talk a little bit about that notion because I think it affects people who are trying to lose weight just as much as it affects people who are trying to protect their brain.

Dr. Perlmutter: Well, I'd be delighted to. And one of the things about writing books is when the validating studies come out after the book has been published, you say gee, I wish I would've had that study to go into either, in my case, *Grain Brain*, or *Brain Maker*, my new book.

But that said, in February of this year there was published a report in the *Annals of Internal Medicine* that was a meta analysis of over 500,000 individuals. It looked at things like risk for coronary artery events in relationship to dietary questionnaires related to saturated fat.

And there was no relationship whatsoever, meaning those individuals eating the highest levels of saturated fat, a type of fat that humans have eaten for arguably a couple of million years until somebody said no, you shouldn't, because something terrible will happen, suddenly were going back now to eating food that we've always eaten.

But with relevance to saturated fat and the brain, we understand that saturated fat is important as a component of cell membranes and including neurons, as is cholesterol, I might add. And the unique and wonderful thing about saturated fat is it is highly resistant to the process of being oxidized or damaged by free radicals. So that's the beauty of something that is saturated.

We use a type of intervention in dealing with various neurologic conditions by giving some very exotic type of fat that you can hardly get anywhere that's highly saturated. It goes by the name of coconut oil. So we use a lot of coconut oil, 90% saturated, as a way of actually allowing the brain to move away from the burning of carbohydrates as a fuel and shift over to a process called ketosis, of actually burning fats, certain fats that are in fact metabolized from consuming coconut oil. There is actually an FDA approved medical food that you can write a prescription for for patients with Alzheimer's disease that in fact has shown some effect in terms of memory improvement.

Again, we know that if we can improve the energetics of the brain, we can safeguard the brain. And we can improve function. And that's exactly what you're doing when the brain is burning these ketones. When we give things like coconut oil to patients, and we restrict their carbohydrates, they shift over to a metabolism where they're burning ketones. And it's very, very therapeutic.

So the whole notion of saturated fats has really been upended, gratefully, based upon science, gratefully. When you recognize that 50% of the fat in human breast milk is saturated fat, that should even give you pause. I mean you're going to tell us that you shouldn't have saturated fat, but babies shouldn't drink breast milk? Those things are inconsistent.

The saturated fat in breast milk is important because it helps to build a stronger, more resilient, more functional brain. That's why it's there. This has been trial and error for millions of years. And it works out that way. So gratefully, a lot of these long held notions are being upended. It's not comfortable for most people because people become wedded in the notion that fats are bad, that dietary cholesterol is somehow going to cause problems, and that saturated fat is harmful and that we should be eating lots and lots of carbohydrates in the form of whole grains.

We are seeing these things get turned over. And actually, it's a real issue of coming full circle because we're really getting that back to what we've always eaten. We just got off the road here for a short period of time. For 50 years or so we've really - maybe more; maybe longer if you look at sugar early 1800s - we've really just gotten off the right path. We're getting back on the right path.

And I think I'd like to mention that now, as we move forward, I believe that we're going to be looking at our food choices in terms of the macronutrients of fat, carbohydrates, and protein, and the micronutrients, including fiber, not just from their direct physiologic activities in terms of how we utilize these foods ourselves, but, I think, more importantly, as we start to look at our food choices through the lens of the microbiome, through the lens of the 100 trillion bacteria that live within us, in terms of how our food influences the array, the complexity, and the diversity of these organisms and their effects upon our health and metabolism. We will look upon food in an entirely different, new, and exciting way. This is really where diet becomes hugely empowering in terms of allowing us to regain our health.

Dr. Jonny: Well, before we go into some of the things you talk about in *Brain Maker*, I have some specific questions about that with the microbiome. I want to, before we leave ketones, ketogenic diet, there's so much misinformation about this.

For years doctors confused nutritional ketosis with diabetic ketoacidosis. They thought it was a life threatening condition. You tell your average medical doctor about being on the Atkins diet, and they would practically go apoplectic because they were sure that this would be just a terrible, terrible thing. We have a couple of speakers on this program who are big advocates of ketogenic diets. I've heard rumors that you try to stay ketogenic most of the time.

Dr. Perlmutter: I do. And that is for several reasons.

Dr. Jonny: Please.

Dr. Perlmutter: I think that it's really pretty well substantiated that being in mild ketosis is probably the normal, natural, steady state for humans based upon history.

Dr. Jonny: And what does it take to do that?

Dr. Perlmutter: It takes a modicum of effort to restrict your carbohydrates. I'm not saying to not eat carbohydrate-laden vegetables and a little bit of fruit.

But pounding your body with two glasses of orange juice in the morning that's giving you 60, 70 grams of carbohydrates, 18 teaspoons of sugar, before you had your croissant, bagel, and cereal, makes no sense. Humans have never experienced the carbohydrate load that we're experiencing today.

And I do take added fat to my diet, added olive oil, coconut oil, nuts and seeds, fish oils as well, and keep myself in a slight state of ketosis. When we look at the effect of ketosis on gene expression, on basic metabolism, on looking at how, for example, malignant cells metabolize and by and large requiring glucose and not able to facilitate the use of ketones, it seems to me to be really the right choice. And frankly, I have a first degree relative, or I had until my dad died a couple of months ago, with Alzheimer's. So I need to do everything I can.

And in addition to a ketogenic diet, daily aerobic exercise is key for amplifying the gene expression for a growth hormone, if you will, called BDNF that actually stimulates the growth of the hippocampus. So from a personal and a professional perspective, this is the ticket.

And there are plenty of sticks in the mud who don't want to change and are resistant. But I always

think back to the quote on the office of a friend of mine, Dr. Amar Bose. You're probably wearing his headphones right now. And on the glass door of his office it read a quote from Maurice Maeterlink, a Belgium Nobel laureate. "At every crossway on the road that leads to the future, each progressive spirit is opposed by a thousand men appointed to defend the past."

So it's easy to defend the past because it's a comfortable place to live. And it's not as comfortable to push the ball down the field and to adopt new issues and adapt to change. But I believe clearly that's the mission. Otherwise we will stagnate and accept the status quo. Ronald Reagan said that status quo is a Latin term for the mess we are in. And if you don't believe it, again, visit the shopping mall, and you'll see the mess that we are in.

Just as kind of a global perspective, the World Health Organization has indicated a couple of interesting things. First, that non communicable diseases are now the number one health issue in the world. Even in developing countries it is not infectious disease anymore.

It's chronic, progressive, degenerative issues, the coronary artery disease, diabetes, cancer issues as well, but most of the degenerative conditions, Alzheimer's, in my field and diabetes, of course, globally. And they have talked about a goal called 2025, meaning by 2025 they want to reduce these issues by 25%, very ambitious. The way to do that is to change what's happening right now.

When the United States Governmental Dietary Advisory committee that published their 700 page compendium earlier this year tells us that the biggest issue in terms of threatening our health isn't dietary fat, it's the sugar and

the carbs, it really offers up a heck of a lot of validation for all of us who've been saying this for the past couple of decades, for you and Dr. Sinatra who have come out and talked about cholesterol not being the issue here.

Cholesterol's vital for life. My goodness, all the sex hormones, cortisol, vitamin D are manufactured from cholesterol. It's a brain antioxidant. It's a fundamental player in cell membranes throughout the body. So it is time that we really take a deep breath and recognize that what, in general, the public is being spoon fed, quite literally is not in their best interest.

Dr. Jonny: Well put, well put. In *Brain Maker*, you actually talked about two classes of bacteria in the microbiome, which I probably can't pronounce because I was not familiar with them.

Dr. Perlmutter: I'll help you with that.

Dr. Jonny: Please, firmicutes and I'm not even going to try the other one. But I found it fascinating in *Brain Maker* when you explained how some of these actually extract energy from food more efficiently than others. Some are statistically significantly more associated with the gut microbiome of obese people as opposed to lean people. Could you just talk to us a little bit about those two classes of bacteria and how our dietary choices might affect them?

Dr. Perlmutter: Well I would first indicate that it's not a question of might affect. Our dietary choices have a very dramatic effect on the regulation of the various populations of organisms that live within us as well as the diversity and as well the ratio of these two very large classes of organisms, the firmicutes and the bacteroidetes,

making up 70 to 80% of the bacteria that live within us.

I'll take you back to a study published three years ago that analyzed the fecal contents in terms of bacteria of children living in sub-Saharan Africa in a country called Burkina Faso and compared those findings to children living in western Europe. And the findings are really quite dramatic in terms of the differences not just in the ratios of these two large groups of organisms of firmicutes and bacteroidetes with the African children in a very rural area having much lower levels of firmicutes and higher levels of bacteroidetes, but even beyond that the products of the gut bacteria and specifically what they looked at are what are called the short chain fatty acids. These are products of carbohydrate metabolism in the colon. Short chain fatty acids are important as a fuel for the cells lining the colon. At least butyrate is certainly one important short chain fatty acid.

But we now understand that these short chain fatty acids also act to modify the expression of our own genome. What does that mean? It means that the gut bacteria, through these short chain fatty acids, are able to control our human genetic destiny. That really puts a spin on our understanding of the microbiome and also what we do to control our microbiome, how we nurture it or not.

So since that study was done, there's been more and more literature that confirms the notion that higher levels of firmicutes seems to be associated with higher risk for becoming obese. A Dr. Jeffrey Gordon has done research in which he has actually inoculated laboratory animals that were germ free with the gut bacteria of obese humans that have higher levels of firmicutes. And lo and behold, even though these laboratory animals

are fed the same chow as their neighbors, they get fat.

And what does it mean? It means even though they're getting the same chow, same calorie count, etcetera, very strictly controlled, these organisms that live within these laboratory animals extract more calories and do other things that tend to increase the risk for obesity. And that also has to do with its effect upon glucose response and insulin sensitivity.

So it's becoming very clear now that being overweight and obese has more to do with other things that we haven't recognized before. Yes, it's diet. But when patients tell me, "Doctor, I promise you. I am on the strictest diet you can imagine. I'm on 1200 calories a day. I'm at the gym. I'm on the treadmill. And I cannot lose weight," we now have to consider that they may indeed have a gut bacterial array that is standing in their way.

They can't lose weight because this gut bacteria is changing their insulin sensitivity, right. And when the body becomes less sensitive to insulin, more insulin is secreted. And with more insulin that's secreted, as I mentioned earlier, the more fat you develop. And in addition, higher levels of firmicutes may be extracting more calories from the very food that they eat, even their 1,200 calories.

And again, one of the biggest issues that we see is this use of artificial sweeteners. That has a dramatic effect upon the microbiome. And it's associated with significant increased risk for obesity and type 2 diabetes. An elegant study published in the journal Nature by Israeli researchers who actually looked at three artificial sweeteners that are commonly used in humans: saccharine, aspartame, and sucralose, found that the changes that were imparted on

the microbiome of the laboratory animals from these three artificial sweeteners were dramatic.

It turns out that saccharine was the worst offender. And so then in the rest of their research they used saccharine to see what else they could learn about it. They found that inducing the changes in the laboratory animals by giving them saccharine changed their microbiomes.

Then when they took the fecal material from the fat laboratory animals and transplanted that into a germ free animal, that animal got fat as well. So we see that it wasn't the direct effect of the artificial sweeteners, but it was an effect upon the microbiome. They took the artificial sweeteners out of the equation and found that the microbiome, when transplanted, did the same thing.

And then they did something even more remarkable. They chose human subjects. And they gave a group of seven humans the maximum FDA approved daily amount of saccharine for only one week. And in four of those seven individuals, their tests of insulin sensitivity, glucose responsiveness, etcetera, were dramatically changed within one week of changing their microbiome.

How did they know it was their microbiome? They did exactly the same thing. They took the fecal material from these, what are called, responders. They transplanted it into a laboratory rodent. And lo and behold, immediately these animals became insulin resistant, and blood sugars went up.

So it really is very humbling to recognize a couple of things. First, that we are very dependent upon the health of our microbiome in every way, and that we didn't

recognize this over the years. 90% of the information published about the microbiome in peer review journals has only come out in the past five years.

And we want to think that we're the center of the universe. And it turns out that we're not, that our gut bacteria outnumber the cells of our bodies by a factor of ten to one. And their DNA outnumbers our DNA by a factor of 100 to one, meaning that you are 99% bacterial DNA compared to this wonderful 23,000 genome that we inherited from mom and dad.

Dr. Jonny: Now here's what I don't want people listening to this to feel, that they're stuck with a certain microbiome. Maybe they have more firmicutes than they need to have and is this just their fate. What can people do if, in fact, they have a gut flora, a population of their internal garden, if you will, that favors extracting every last calorie from what they eat and putting on fat and making their bodies less sensitive to insulin? I know none of his would matter if we didn't have a program to give them to try to correct that.

In *Brain Maker* you told a very touching story of your father, who you just mentioned. And you ask what could we do to prevent this. And I have a feeling that the diet that we would use to prevent that, or at least reduce the risk for that, is very similar to the diet that we'd use to prevent diabetes and to prevent obesity and maybe to correct the microbiome problems that may exist for obese people.

So what would be the program? What would you advise somebody coming to you saying I think I'm stuck with this imbalance in my gut. Like you said, 1200 calories a day, I'm on the treadmill nine hours a day. Nothing is working. What would be the top three things you'd

tell them to do?

Dr. Perlmutter: First I'd say who is this for? I think you asked that in that question. It's really for everyone. The notion that there is a brain healthy diet and then there's a heart healthy diet and then there's a diet to help you lose and maintain body weight...

Dr. Jonny: An anti yeast diet.

Dr. Perlmutter: When people say, oh, your diet is similar to what a cardiologist, Dr. Masley, is talking about for the heart, what Dr. Hyman's talking about with respect to blood sugar, the point is, there's not one healthy diet for the heart at the cost of being bad for the pancreas or the brain. It doesn't work that way.

Obviously if we have survived two million years based upon food availability, our physiology has been honed to respond to certain food cues, not just our physiology but our microbiome as well. We have coevolved along with this gut bacteria. And if I can digress for just one moment, we now have the ability to determine what was the microbiome from our ancestors.

New technology has looked at fossilized fecal material and also even able to look at the calculus between the teeth in fossilized specimens and determine what was the microbiome of our ancestors thousands and thousands of years ago. And interestingly, as an aside, what was found is really that the microbiome is very similar to what I described earlier, or the microbiome of those individuals living today in very rural populations. So my sense is that would be an ideal microbiome. We really don't know yet what that means.

I think before we get to the part about what you can do to rehab

your gut bacteria, let's just for one brief moment talk about those factors that have led you astray, that have compromised your gut bacteria. And that includes your moment of birth. And it turns out that a very important thing happens at the moment of birth when you pass through the birth canal.

At that moment, a baby is coated with bacteria that live in and around the birth canal. And those bacteria set up shop in that infant's intestines. They're in his mouth or her mouth, nose, etcetera, all over the skin. And that forms the basis for his or her microbiome. And to some degree that is the set point that has to adapt that individual to his or her environment for the rest of his or her life. Think about that.

Now the reason I bring it up is because right now in America, one third of children are born by Cesarean section. And their microbiome is formed by whatever's floating around in the operating room, whatever is on the surgeon's gown, and whatever might be on mother's skin. And it's really not a highly functional microbiome. When we see that risk of children born by C-section developing autism is increased as much as being doubled, triple the risk of ADHD, significant increased risk, 70%, of type 1 diabetes, 50% increased risk of becoming obese as an adult in comparison to kids born naturally, we have to understand that that's a very pivotal point in the development of the microbiome and really pivotal in terms of the set point of immunity, of inflammation, and metabolism for the rest of that person's life.

But beyond that we then look at what are some of the traumas to the established microbiome that we need to be aware of. So right now before we get to the rehab part, we're in the preventive part. I think on the top of that list would

probably be our incredible over usage of antibiotics. Antibiotics are really weapons of mass destruction when it comes to the microbiome, weapons of mass microbial destruction.

So when we feel like we've got to load kids up with antibiotics every time they pull on their ear or cough or complain of a sore throat, we need to reassess that. Same thing with adults, patients are forever wanting me to call something in because they have a cold. And it really doesn't make any sense.

So that said, when the World Health Organization lists antibiotic over usage as one of the top three health issues facing the world today, we have to pay attention to that. And it's not just from the perspective of creating antibiotic resistant super bugs. It is also from the perspective of what it's doing to the microbiome. So our over usage of antibiotics is really critically important.

The third part is food. It's really quite clear that the American diet that is so devoid of fiber, not to mention prebiotic fiber, as well as high in sugar, artificial sweeteners, artificial ingredients, food that has residues of herbicides like glyphosate, the active ingredient in Roundup, all threaten the microbiome and pave the way for issues that we now relate to the microbiome.

Front and center are the degenerative conditions that are inflammation and/or immunity based. That's what the microbiome does. So when we change these gut bacteria, we lead to a situation where the gut becomes permeable, and a chemical called LPS from the gut gets into the systemic circulation and amps up inflammation. That's a bad thing.

Again, we look at inflammation as being a pivotal player in diabetes, cancer, inflammation, Alzheimer's, coronary artery disease. We've got to look at the beginning of this flow sheet, not the very end of the flow sheet, not trying to develop chemicals to treat inflammation in the joint in an arthritic patient but ask ourselves, wait a minute, where did the inflammation come from in the first place. Let's focus on the fire not just the smoke.

So what we've got to then do to rehab the gut, my first recommendation is start eating a lot of nutrient dense, fiber rich, colorful vegetables that are organic. I think on your plate what I'd like to see is mostly colorful, rich, above ground vegetables. I think that foods that are fermented are really nifty because they're loaded with gut restorative good bacteria.

These are things like kimchi, which is a Korean spicy fermented cabbage dish; sauerkraut; cultured yogurt; kefir, a beverage, as well kombucha. These are foods that are fermented. And frankly, humans have eaten foods that are fermented for probably as long as we've been hunter-gatherers. Fermented is a nice way of saying food that is rotting.

When a food is on the ground, and it ends up rotting, it's covered with organisms that are gobbling up the food and fermenting and replicating. And we always ate that. We didn't have the luxury of going to the grocery store. We ate what we could find or what we could kill.

The other really fundamental pillar here is to welcome to the table foods that are rich in a special type of fiber called prebiotic fiber. And the prebiotic fiber foods will enrich the growth of the bacteria that live within you, the good bacteria, help you make the right kind of, for example, short chain fatty acids. So

these are foods like Mexican yam, or jicama, dandelion greens, garlic, onions, leeks, Jerusalem artichoke.

Or you can buy prebiotic fiber. Go to the health food store. They sell various brands of commercially available prebiotic fiber, things like acacia gum is one of my favorites. You can go and buy a supplement of acacia gum, get a good probiotic supplement at the health food store, and you're opening the door to recolonizing your gut with good gut bacteria. And at the same time you're amplifying the growth of those bacteria as well as the growth of the good organisms that already reside within you.

Dr. Jonny: Now as long as we're talking about things that not only upset the microbiome and predispose us to all the conditions we don't want to have, I'm going to just throw out a couple of things that you talked about at great length not only in *Brain Maker* but in *Grain Brain* before that. I think I know what your reaction will be. I'm just going to throw them out and let you riff on them. Gluten.

Dr. Perlmutter: I've heard of this gluten thing.

Dr. Jonny: You've heard of this gluten thing, right. Well, I mention it because I think it's a good tie in, also, between what you've written, what Bill Davis has written about what these things do to the brain, but also what they do to our waistline. So just give us a couple of minutes on gluten. I'm going to ask you about fructose. And then we can go back to the preventive program that will help not only our brains but our waistline at the same time.

Dr. Perlmutter: Okay.

Dr. Jonny: And then I promise to let you go.

Dr. Perlmutter: Oh, no, no. Certainly Dr. Davis has done an incredible job in talking about some of the components that are found in wheat, even well beyond gluten, that have roles to play in various pathways biochemically in the brain throughout the body. But I think that from my perspective, vis a vis the conversation we're having today, the gluten issue, and specifically part of the gluten that's called gliadin, is an issue for this discussion because of its role in gut permeability that I was speaking about earlier.

As Dr. Fasano at Harvard has clearly demonstrated, this glycodin protein found in gluten causes the cells lining the colon to produce something called zonulin. And what zonulin does is it leads to a breakdown of the tight junctions that exist that give the gut integrity, that connect one cell to the next and allow the gut to be really fairly impermeable to certain issues.

When you threaten that, then various things get out of the gut and into the bloodstream, like what I mentioned earlier, LPS or lipopolysaccharide. So it is really this understanding of gliadin found in gluten that makes me recoil when I see that 25% of the foods that are eaten in America today are based upon wheat, and therefore, by and large, contain gluten, as well as barley and rye, because of its role in terms of gut permeability.

That becomes a cardinal issue in my world as it increases gut permeability leading to LPS getting out into the systemic circulation, stimulating immunoreactive cells to produce what are called toll like receptors to produce these chemicals called cytokines, things like tumor necrosis factor alpha, that is specifically correlated to Alzheimer's disease. That's the connection.

And that's where I come down on this issue with the argument, if you will - let's call it a discussion - with reference to the safety or not of gluten containing foods. That said, I think it's pretty well entrenched now that there is an entity called non celiac gluten sensitivity, where people have physiologic responses that are maladaptive to gluten that are unrelated to an autoimmune condition that relates to a person's HLA typing. That we call celiac disease. These are apples and oranges, if you will. Both are treated the same way. But they're very different.

And I suspect that the individuals who do have non celiac gluten sensitivity are a vast segment of our population, most of whom don't know this. I'd go so far as to say that everybody, based upon the mechanism that Dr. Fasano described, has some degree of reaction that is negative when they consume gluten related foods.

Dr. Jonny: Yeah, the thing that bothers me a lot, and I'm pretty sure that you'd agree, is that we have this epidemic of people eating gluten free. But they're eating gluten free junk foods, which still boost blood sugar and insulin and still contribute to fat storage and probably still screw up the microbiome. But they don't have gluten in them. So do you want to just demolish that one real quick for me?

Dr. Perlmutter: Well, I always talk about this in my presentations. I take people down the gluten free aisle at a local health food store. And we look at the gluten free cupcakes, one of which has 64 grams of carbohydrates in one cupcake. So you're already at your limit for the day.

Dr. Jonny: Right.

Dr. Perlmutter: So you don't get a free pass on the gluten free aisle to eat whatever you want. I mean that's where you find the gluten free crackers, cookies, breads, pasta. Again, gluten free is important, but you've got to regulate your daily consumption of carbohydrate or you will be busted and contribute to, again, issues related to your microbiome, challenging your insulin sensitivity on a daily basis, and really paving the way for being a standard American that we see today.

Yesterday - here's an example - I was flying from Toronto to Ft. Lauderdale. And I settled into my seat. I'm reading the newspaper. And sure enough the call goes out, is there a doctor on the plane; we have an emergency. This happened yesterday. So I turn around. And sure enough there's a man unconscious in the aisle.

And I get back to him, finally able to wake up him, ask him about his medical history. This man was very large, on a multitude of medications, had had two myocardial infarctions, had had a TIA. And when we finally were able to - he just had a syncopal event - get him aroused, and I started talking, he was really paying no attention to these issues but relying on the status quo of current medicine by being a good boy, taking his cholesterol lowering drugs and his blood pressure lowering drugs and an aspirin each day in hopes that that will protect him.

Well, again, those are issues that act, if they act at all, at the end of the line. Why are you hypertensive? Why do you have coronary artery disease? It's an inflammatory disorder. And here's a man who was clearly obese. These things are not disparate. You can't be healthy and obese. There is going to be a price to pay. When you are obese, you're

fanning the flames of inflammation. And that's the cornerstone of all of these dreaded conditions.

And I want to just tell you that at the end of the trip, it couldn't have been better. Here's the commercial. I'm waiting with my wife to get our bags. And a man, a big, big man smelling of cigarettes, comes up to me. He says, "Hey, doc, listen. If you needed nitroglycerine, I have it in my bag. I would've brought it if you needed it." And it was just perfect. I'm thinking now the only good that can come out of this is tomorrow Jonny's going to interview me, and I'll tell this story. So there you go.

Dr. Jonny: That's a good story. Let's go back to the program because I know that we have to wrap up. But you've said tons of foods with probiotics like kimchi and kefir and all the naturally fermented foods, tons of brightly colored vegetables for their anti-inflammatory and their prebiotic and antioxidant power, all of that. In *Brain Maker* you talk about going low carb and embracing high quality fat.

Do you want to touch on that for just a moment because I know that's something that really, for the people who are just like how do I lose weight and then the people who are like how do I have a better brain and a better life, that's going to be a common thread right there. So how does that fit into the program of prevention?

Dr. Perlmutter: Well again, this seems very counterintuitive to those people, but what I'm saying, and so there's no misunderstanding, is eat more fat. You will be healthier. It seems crazy.

Dr. Jonny: And slimmer, right?

Dr. Perlmutter: I'm simply saying eat more of the diet that humans have eaten for tens if not hundreds of thousands of

years. Does that fall in line with the paleo recommendations? You bet it does. Fat is your friend. Now let's be certainly very clear about that. Modified fats that have been treated in such a way to extend their shelf life are the devil's plaything. I mean these are clearly going to represent coffin nails. You've got to avoid them like the plague.

So I'm not talking about the vegetable oils that are on the grocery store shelves for six months or 12 months, and they're there a year later, and they're still perfectly fine. They were never fine. And they're not going to be fine moving forward. I'm talking about fats that will go rancid if they age. That's what you want. It means they're still alive, and they're dying. And this is the extra virgin olive oil, that you should drink.

A recent report came out called the Mind Study, where they actually looked at the efficacy of the Mediterranean diet in terms of people consuming that diet and what was their risk for dementia. They found that that was a good diet in terms of being associated with a reduced risk of dementia.

But then they did something really very clever. They had two other groups that were on the Mediterranean diet, which is a very reasonable diet, the grains notwithstanding, but in these groups they said okay, be on the Mediterranean diet. One group, we're going to ask you to eat nuts, a lot of nuts, over the period of time. I think it was 24 months. And the other group was to add olive oil, one liter a week, to their regimen. That's a lot.

Dr. Jonny: That's a lot of fat.

Dr. Perlmutter: And it turns out that in terms of being associated with the most reduction of risk for

dementia, it was the Mediterranean diet with the added olive oil, the highest fat diet. That's a lot of fat. And we now see that it helps people in terms of inflammatory markers, in terms of other biometrics like lipid metabolism, glucose sensitivity, insulin sensitivity, glucose levels, hemoglobin A1C, body mass index. So it's been there all this time that we've needed to eat more fat at the cost of reducing our carbohydrate and simple sugar consumption.

Dr. Jonny: Well, Dr. Perlmutter, I really so appreciate this time that you spend with us. It's just a compendium of information. I've said many, many times I think that *Grain Brain* and *Brain Maker* are two of the most important nutrition books of the last decade. I urge everybody listening to read both of those books. And read them again because there's just so much wonderful information in there.

And I want to, again, thank you for spending, so generously, so much time with us today. I know people will be very helped by it. And thank you again.

Dr. Perlmutter: Thank you, Jonny. That was really great. Your questions were so spot on. And I appreciate the opportunity.

Dr. Jonny: Thank you. Talk to you soon. Bye bye.



New Brain Science Discoveries to Heal Your Life

Alicia Lynn Diaz and Bill Harris

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Alicia: Okay, welcome, everyone. Alicia Lynn here from alicialynndiaz.com. And I'm so excited to welcome you to this really special episode of The Soul of Healing Summit because today we're talking with Bill Harris.

And, as you know, I really felt called to put this summit together to help you harness the power of your mind, emotions, and spirit to create radical self-healing. And today, Bill is going to be sharing with us some really powerful information on new brain science discoveries that can help you heal your life.

And now, to give you a little bit of background, Bill Harris has been a personal development seeker, teacher, a public speaker, author, therapist, workshop leader, and business owner for more than 35 years. And he has become one of the world's best known personal growth teachers. He was a featured teacher in the film *The Secret*. And Bill is best known for creating Holosync audio technology currently used by nearly 2 million people in 193 countries.

Bill is currently president and director of Centerpointe Research Institute, which he started in 1989 with borrowed equipment to record, setup on his kitchen table. And in addition to leading his own workshops and video courses, Bill is a frequent speaker at scientific

and transformational forums and conferences. And he is really known for his ability to explain complex, difficult subjects in an engaging and easy to understand way. So we're really excited to have him here for that.

And he has also shared the stage with many top human potential leaders including the Dalai Lama, Jack Canfield, Dr. Stephen Covey, and Ken Wilber. And in 2003, gave an address to the United Nations Values Caucus.

So welcome, Bill. Such an honor to have you here today!

Bill: Well, I appreciate the invitation. I didn't know it was Alicia Lynn.

Alicia: Oh, that's okay. I go by Alicia. But I just like to use my full name when I'm introducing myself.

Bill: I see. All right. Well, I'm really glad to be here.

Alicia: Yeah, yeah. So I'd love to start today just to understand a little bit how you came to create Holosync and a little bit of your personal background. You have a pretty in-depth understanding of traditional meditation lineages as well as the advanced modern science of it. So, how did you come down this path?

Bill: Well, I actually grew up very unhappy and very difficult to be around. I was angry. I was

depressed when I wasn't angry. And I was very narcissistic, very difficult to get along with, had no idea what effect I had in people. And because I was kind of afraid of people, although I didn't know it at that time. I would do things to drive them away. And it worked. And so I was not a real together person, happy camper by any means. I was really kind of a [censored] actually.

And so one of the things that was suggested that I do in order to do something about this was to meditate. This was before meditation was all over the place and everybody pretty much accepted that it does something. In those days, people thought that meditation was something that weird people way off somewhere in the Himalayas or something like that do, and we're not sure why. And it's certainly not totally mainstream now. But it was way, way less mainstream then.

But anyway, I learned to meditate. And being a type A personality, I became a type A meditator, which is sort of an oxymoron. But I was just very disciplined about it. And I could tell right away, wow, something is really happening when you do this.

And had taken all the pre-med sciences in school. And we had a very scientific vent. And although I found the Eastern philosophy explanations for what was going on in meditation very lovely, I knew that there was something going on

that could be explained in a more scientific way. And actually, since that time, there has been just tons and tons and tons of research about this which started mostly in the 1970s, which was five or six years after I started meditating.

So, at any rate, the traditional meditation definitely helped me. But really 16 years later, when I was in my mid-30s, I was still really unhappy. And really difficult to get along with. I had improved in some ways. But I was still -- and I ran across two pieces of research that lead to Holosync, which is just really a technological way to get to the same place. Just like driving your car will get you from A to B a lot faster than walking, Holosync will get you to the same place that traditional meditation does. But actually, we found after 31 years and it's actually over. It's about 2.2 million people I think you are looking at an old bio.

Alicia: Oh, okay.

Bill: Where did you get that, anyway?

Alicia: Your assistant.

Bill: Really?

Alicia: Yeah.

Bill: Why did she send that old one? Anyway, it doesn't matter. Lots of people have used this. So, at any rate, in the '70s, there were some research done at the Menninger Clinic and actually at Harvard, too.

The TM people, went to Dr. Herbert Benson at Harvard and wanted to do these studies on TM meditators. The TM people are a little bit cultish. In fact, they're a lot cultish. I was involved with TM for quite a while actually. And there was a sort of falling out. However, as a result of that and other things, Herbert Benson published his book in 1975 called, *The Relaxation Response*,

which is the other side of the coin from the fight or flight response.

And that was really the beginning of a lot of research about meditation and other related things. So, in the 1970s, they knew what electrical patterns meditators were making in their brain, because they had measured it. Then, I ran across a rather obscure article inside of a journal. Because I was just geeky enough to be reading those sort of things. And the short way to say it, it was describing a way that you could change brain wave patterns.

It was saying that when you present certain combinations of pure sine wave audio terms to the brain through headphones. So you can target some to the left side of the brain and some to the right side of the brain. There are these two little organelles in the audio processing part of the brain. They're called the olivary nuclei. Nobody needs to remember this. That in order to reconcile the differences between these tones, it creates what's called a standing wave in the brain. That sort of the brain waves start to align with this. It's called a frequency following response.

But the long and short of it was that it was a way to change brain wave patterns. And he didn't describe any use for it. He didn't say anything about like why would you care? Why would you want to do this? It was this very abstruse article for other engineering geeks. But I said, wow, these are the brain wave patterns of meditation. This guy says you can change brain wave patterns in this way. What would happen if we did that?

When people have drumming circles, for instance, that changes brain waves. Any kind of a pulse, it's kind of a very primitive way to do it. But there are other ways to change -- your brain waves change when you watch television or when you

make love or lots of stimuli change them. But this is just a very precise way to change them. Meditation is a way to change them too.

So anyway, I said, these are the brain wave patterns of meditation and there's a way to change them. What will happen if I do this? Will it feel the same? Will it be the same experience? Will we get the same results? Will we get the same results maybe faster? Because stuff tends to happen when you do things technologically in many other cases. So I gathered together some equipment that I didn't have any idea how to use, because I wasn't very technically inclined. But I figured it out.

In my basement, like a little mad scientist, I started making these soundtracks and experimenting with this with a couple of my friends. And when we first listened to -- the first thing we did, which is crude compared to what we do now. We just sat there staring at each other when the soundtrack ended.

We have these headphones and we're listening to these sounds. We're changing our brain and putting us into this deep meditative state. And we just sort of looked at each other. And after about 20 seconds of silence, one of the other guys said, "Are you feeling what I am feeling?" And I said, "Yeah, this is really cool."

And so we started refining this more. Or I really did. That they were just along for the ride. But we started refining this and figuring out ways to make it better. And at first we were just really entranced by the experience, which was really mind-blowing. Anybody that sat there meditating as a beginner and you read all these books about meditation, how great it's going to be and with swami such-a-banana-head, this experience where Shiva

came to him. And you think, "Wow, I've got to do that."

And then you're doing it. And your experience is, "How long has it been in there? That's only four minutes. Geez, my leg hurts. What's that noise out there? Oh God, I forgot to put triple A batteries on my shopping list." That's your experience of meditation. It's just what you're going to do next. What you did before. What part of your body hurts. How long has it been.

So instead, though, this was just transporting us. And so we were blown away by the experience. Well, I told you before we started recording that I had learned all these Eastern techniques, Hindu and Buddhist and so on. And most of them, in the same way as what I just described, you're doing these techniques and these various things are supposed to happen.

But they don't tell you, they're not going to happen to you until you've been doing this for 10 years or 15 years or something because you get little glimpses of this thing or whatever it is that is supposed to happen when you do this. We started doing these techniques while we were listening to Holosync. We didn't call it Holosync then. It was like proto-Holosync. And suddenly all these stuff is happening. The full-blown thing was happening.

That was the first thing that caused me to say...Well, the experience was the first thing. That was the second thing and I said, "Wow, this is really doing something." Then the most important thing happened, which was that I stopped being so angry. It just began to dial down. I would be around people that -- do you know who Mary Morrissey is?

Alicia: Yeah.

Bill: Mary and I went to high

school together, actually. And I was working with her in a church she had then called Living Enrichment Center. And there were some people there that I found really annoying. And all they had to do was almost just come near me. And that triggered me and everything. And so I started to notice that these people that I thought were so annoying, it wasn't bothering me anymore.

And I thought, "Whoa, that's amazing. This person used to make me want to smack them." So all these things. I stopped being depressed. I began to be more aware of other people and how I affected them. And so, I started to treat them better. I started to like people. And all these emotional improvements began to happen in my life. And I was really a mess. It was really remarkable and I've been through every kind of seminar, therapy, physical therapy, all those things.

I was, like I said, a type A personality. So I just did everything I was very disciplined about. So this really began to change me. Then at the same time, I was a graduate student in music. I was studying with two world famous composers. And my creativity really dramatically went up. And my ability to focus and concentrate and all these mental ability changes began to happen to me too.

And of course then there are the "spiritual" changes. Which I sort of meant before we started to ask you, what's your definition of spiritual? Because people use that word a lot. But they're not that precisely clear about what they mean by it.

But what I really mean by it is we're all doing our best to navigate through life. And being a human being is not easy. There are many things you have no choice about. I don't know, I could go into that in

more detail. But there are several of them. The big one is that everything isn't permanent. It's always changing. And people get -- they talk a lot in Eastern philosophy but not being attached.

If you really could achieve that, you would probably not survive. Because the only reason you come in from the cold or eat or take care of yourself is because you're attached to being alive. And the only reason that you do a lot of things is because you're attached. It's not so much that you want to get rid of it. It is that you want to have a middle ground where you're attached enough but not so attached that you suffer.

You get a dog. And you fall in love with the dog. And you get attached to the dog. And then dogs don't live as long as people. So the dog dies. And then you go through all this grieving and all this suffering. There's lots of things like that built into life.

So anyway, being a human being is not easy. Just for the sake of time, I'm not going to go into it about eight other things that everybody go, oh yeah, oh yeah, oh yeah. So, a lot of spiritual development is about learning how to not resist life. And to let things be the way they are. It's sort of like that Serenity Prayer they say in AA where you want to recognize the things you can't change -- change things you can. Recognize the things that you can't change, and be able to tell whatever is between those, and kind of like cool out, relaxed.

And I think that when you achieve some degree of this, you just start to feel comfortable on your own skin. And you know just what to do at any given situation. And you know where in a situation there's maybe nothing that you can do that's going to keep whatever it is from happening. And then you just

have to be okay with it. Because you do have control over your response to things, if you're aware enough.

So, at any rate, I was telling you just how Holosync changed me. It changed me mentally, emotionally, physically, spiritually. My stress level went down. All kinds of things. And during that time, through word of mouth, more and more people were using it. And I was just giving it to them. I wasn't even thinking about a business or anything. I was just doing this for myself and my friends. And then they would tell somebody and they would say, "Hey, can I do this, too?" and I would say, "Sure," and I made them some Holosync soundtracks.

So, by four years later, we had about 150 people using it across the United States and Europe. And then, all at once, quite a few of them started coming to me, sort of the 100th monkey effect, you might say, the 150th monkey, I guess, in this case. And saying, "You should create a structured way to use this and make it available to people. Create a business."

And I had no ambition about a business at all. My initial thought was, "Wow. If I made another \$30,000 a year maybe doing this, that would double my income. That would be amazing." And we probably made \$30,000 since you and I started talking now because it's become really, really big.

So anyway, I did start this little business and it took me a while to learn how to have a business. And I met some marketing people and learned how to do marketing and so on and so forth. And it got to be really, really big. So virtually every personal growth teacher around either uses Holosync, has used it, or recommends it to people. And many, many doctors, therapists, veterans administration uses it for post-traumatic stress, on and on

and on and on. Bringin all kinds of credentials and all this sort of stuff.

So, when I first started doing this, I was explaining this quite a bit using Eastern philosophy kinds of language, because that's what I was very steeped in. But then more and more scientific stuff sort of coming in and I began to add more scientific descriptions to this.

And lately, there's been this huge revolution in information about the brain. And what was really fascinating to me is that all of these things I've been saying about Holosync. Now, all these information come in verifying them and describing what's going on in the brain.

And to me, this is some of the most exciting information I've ever seen. And I'll tell you why. The smartest people, when they want to learn or achieve something, they go to the most fundamental thing.

A lot of personal growth products, for instance, are treating the symptoms. They're not going to what caused it. And really, it turns out, this doesn't sound at all romantic, but all these stuff starts in your brain.

Pretty much everything that anybody sees about you or you experience about yourself comes from your brain: how you feel, how you behave, what your moods are like, whether you're happy or sad, whether you can get along with people or you can't get along with people, whether you make money, whether you're fat or thin. Almost anything you can mention is coming from your brain.

And what's happened lately is that the scientists have a) figured out that it comes from your brain, b) they have figured out what parts of the brain are involved, c) they have learned that your brain is

plastic. There's this whole new thing, neuroplasticity, all the ways that your brain changes. So you see, they used to be saying, not very long ago, that once you reach adulthood, that's it. Your brain cannot improve. It's only going to go downhill. Your brain -- didn't you tell me you were 33?

Alicia: Mm-hmm.

Bill: So, your brain started going downhill three years ago. That's what happens. It peaks at about 30. And then it gradually deteriorates until when you're really old. You're just like you were when you were a child, in terms of your thinking ability and also your need to be taken care of and all that sort of stuff.

See, the other thing is they found out that the brain can change. And they also know a lot of the ways to change it. So, a lot of things that people are doing. All these healing methods and so on. If you go directly to the brain and change the parts of the brain that are involved, it happens way faster, way easier. And then all the other things that people have been trying to learn become easy to do.

For instance, you go to a thing about relationship skills. And then you go home. And with your partner, you think I'm going to ace these relationship skills. But then the first time there's a big thing that happens, you realize, "Oops, I'm not using them. In fact I feel like killing the other person." It's not that easy.

If your brain works right, though, you can use them. But when something is out of balance in your brain, it becomes almost impossible. Same thing with learning how to make money or how to be successful. All kinds of things that people learn in seminars. Then they go home. They're all high. But then they

either don't act to implement it. Or if they do try, they have all kinds of problems.

And as I'm about to describe, this stuff about the brain really is the solution. Because when you get your brain right, then all this other stuff is easy. You just get up in the morning. For instance, you want to create a business and be successful. When your brain works right, you get up in the morning and you just do it. That's what you do. You just get up and you take action.

But when it's not right, you get up and you're going, "Oh, God, what if this doesn't work. I'm going to look so stupid." All your fears come up. Your anxieties, your [inaudible], y procrastination. You get sidetracked by other things on and on and on and on.

So this is some of the most amazing, new stuff that come along for a long time. So, you have any questions you want to ask on behalf of the vast audience that's listening to this?

Alicia: I do.

Bill: I want to get more specific.

Alicia: Okay. This is fantastic. Thank you so much, Bill. I think the biggest question right now, kind of riding off everything that you just shared, which is so powerful is can you break down a little bit of the mechanisms for us? Like when you were able to re-pattern all these things for yourself and help millions of people do that? What's actually changing in the brain? And how is that then translating to the differences and the transformation?

Bill: Well, that's exactly what I was about to tell you.

Alicia: Awesome.

Bill: Well, as I said, I've described

this in other ways, which actually, I think, are fairly accurate over the years. But I'm going to describe it in another way now. If we have more time, I'd go through the evolution of how I describe this. But what I'm talking about lately is there are two main parts of the brain that are extremely important. It's more complicated than this. But this really encapsulates it.

One of the ways that I describe this lately is that there are all these things that people want to end or get rid of or heal or improve in their life. They don't want to be anxious. They don't want to be depressed. They don't want to procrastinate. They don't want to have problems getting along with people. They don't want to feel brain fog. They don't want to have trouble going to sleep. They don't want to get in arguments with their partner. There's all these sort of qualities that people have sometimes that are destructive and sort of self-sabotaging things that people want to get rid of.

Then there's another category of things that are desirable qualities that people want more of, like being more creative or more focused or more motivated or more confident and so on, a whole bunch of things. We could make a long list.

And it's always been really hard to get rid of those negative qualities. People do all kinds of things. And they keep doing them and doing them. And while they're doing them, they feel hopeful. But then what happened to me is I would do these things, I would do rolfing. And I would do this other body-centered thing. And I would go to therapy. And I would do four or five – I'm an expert in quite a few kinds of therapy at this point, including being a therapist in them.

And not the there's no value in them. But they often don't get to

the root of the problem. It's hard to change these things. And it's very hard to become more creative or to become more focused or to become more intelligent or all. Both sides of this are difficult. But if you go to the most fundamental thing, the brain, where these things are being created. There are ways to change the parts of the brain involved.

So the first part of the brain is the part that is more responsible for the negative stuff. And that's the limbic system. The limbic system is a more primitive part of your brain. And it's the part of your brain that there's two main...There are things the limbic system does that are certainly valuable. It is the source of motivation. It's the source of falling in love. And some other really good things.

However, there's some negative things that it does. One of them is that it creates the fight or flight response, which is supposed to be something that you use if you're in a real life threatening situation. Unfortunately, people go into fight or flight because they can't find their cellphone or because somebody says something nasty to them or for a whole giant list of things that are not fight or flight, or again, what it was for, they're not life threatening.

And in today's modern stressful world, people are in at least low-grade fight or flight pretty much all the time and sometimes worse. And there are many health consequences of this. Your body makes cortisol and epinephrine. All these stress hormones that are bad for your body. They create inflammation in your body. And doctors will tell you that almost all diseases are either caused by stress or maybe worse by stress.

So there's a whole physical component to this, besides the

emotional component. When you're in fight or flight, you're more likely to get in arguments, be angry, snap at people, be scanning for danger, attribute negative motives to people, even if that isn't what's going on. And many of the problems that people have. For instance, the people that end up in prison often have very, very overactive limbic systems. The other thing that the limbic system does, it's the source of, "I want it now and I don't care about the consequences" kinds of behaviors. It causes your brain to make a chemical called dopamine. Dopamine is a hugely powerful drug. It causes you to be fixated on something and totally motivated to try to get it. But dopamine doesn't give you a pleasure sensation. It just gives you the wanting sensation.

When you're in love and you're wanting to be with your beloved. And you'll do anything to make that happen, anything to please them, dopamine is behind that. But it's also behind eating two pounds of stuff out of the Whole Food's bakery case. When you know you've decided not to eat that stuff. And certainly, not that much of it. It's the source of procrastination. It's a source of spending money you don't have on things you don't need.

Here's a good example of this, at Stanford, they did this study that became known as the marshmallow test. The marshmallow test. They took these preschool kids, put them in a bare room at a bare table and a chair. And in front of them, on a plate, they put a treat. And one of them was a marshmallow. One of the choices was a marshmallow. So it became known as the marshmallow test. But they actually let the kids choose what treat they wanted.

Then say said, "You can have this right now if you want. But I'm going

to leave the room for a little while. And if you can wait until I get back, you'll get two marshmallows." So they were seeing who could delay gratification and who couldn't. And they were also seeing what strategies did they use to delay gratification to keep from just eating the yummy marshmallow.

Then they started following these kids as they grew up. And I think they're still following them. They're in their 50's now, because they did this in 1960s. And they found that the ones that could delay gratification had higher grades in school. An average of 210 points higher in their SATs. They made more money. They had better relationships. They were able to set goals and achieve them. They were less easily rattled. When they had set backs, they bounce back. They had a lower body mass index. And about 20 more things that every human being wants.

The ones that couldn't delay gratification, though. They made less money. They were less likely to be healthy and to have a healthy looking body. They had lots of relationship problems. And every one of those things that I mentioned on the good side, they had the bad side of it.

Then they did brain scans on them when the brain scanning software -- well, not software, but the equipment became available a number of years ago. And they found out that the people who could not delay gratification had very overactive limbic systems. And they had very small prefrontal cortexes. So that's the other part of the brain I want to talk about. Because the prefrontal cortex is the source -- it really the newest part of the brain. It's what really makes us different than other animals. It's the source of executive control, learning from experience, rational thinking, creativity, pattern recognition.

Every kind of focus, concentration. Every kind of positive mental ability you might want comes from the prefrontal cortex.

And the prefrontal cortex, when it's working right, supervises the limbic system. So that you can walk by the bakery case at Whole Foods. And see that stuff and say, "Oh, wow, that looks really great. I'm going to get some of that." And then your prefrontal cortex says, "Bad idea. That's going to taste good for about 20 seconds. And then you're going to feel guilty. And you're going to feel bad physically. And you're going to gain weight. And it's going to cause you to have a lot of insulin. And it's going to make your body say, store fat, store fat. And it's not healthy, et cetera, et cetera." And so you hopefully walk away, if it's strong enough.

So the long and short of it is that all of those things that people want to get rid of are all really related to an overactive limbic system. There are some other parts of the brain that are cooperating in that, too. But if you calm the limbic system, all these problems just start dissolving.

And that what happened to me when I use Holosync because one of the things Holosync does is it calms the limbic system, dramatically so. Also, meditation does both of these things. Meditation calms the limbic system. It just takes a lot longer to do it.

The prefrontal cortex, many studies show, that the brain turns over more of brain real estate to the limbic system and it functions when people meditate. Happens way faster. About eight times faster with Holosync. And that where all the good things that people are striving to more of come from.

So then the only remaining question really is, "Okay, how do you calm the limbic system? How

do you enhance the prefrontal cortex?" There are some other ways that you can do it. There are brain trainings you can do that enhance the prefrontal cortex. There are supplements you can take, GABA, 5-HTP, L-Theanine, and some other things that calm the limbic system.

But these are more symptom treatments than anything else, although they work. I have a very naturally overactive brain. Most of my problems that I described in my [censored] phase were because I had such an overactive limbic system. I thought that everybody else was dangerous. Although I didn't say that to myself. I didn't realize this until later. But I was busy pushing people away because other people have not been a source of good things for me in my life, in my growing up.

So at any rate, there are other things you can do. But the most powerful thing that I have seen is Holosync. Even the first time you use it, you could tell that it's calming your limbic system. And it takes a little longer for the prefrontal cortex stuff to become that obvious to you.

But even people that are doing it for the first one or two, three times, they start saying, "Wow, I was so focused today." One after another, the people are just saying, "Wow, I can't believe how calm I became," or, "I was really agitated when I started listening. But by the end I was just so peaceful. And then the whole rest of my day was [better]. And I couldn't believe how well I got along with my husband, he's always agree at me," on and on and on. Just one after the other.

First time I saw these comments, I just thought, "My God, this is amazing." We have hundreds and hundreds of pages of testimonials. But these are just little short two-sentence things that people are putting after they listen and they're

all just going, "Oh, my God, I can't believe this."

So anyway, I bet you have some questions now.

Alicia: So that must be rewarding to know that you've dedicated your life's work to this. And just to see all of the feedback from your participants.

Bill: I'll tell you, we're not doing them anymore, not right now anyway. We may start again. But we used to do two retreats a year. Where we could take about 60 people in each retreat. We kept it small because we want it to be very personal.

And there were all kinds of things we did at the retreats including listen to a lot of Holosync. At the end, at the last day, there would be like a circle. And everybody would kind of, one at a time, get up say whatever they wanted to say. Thank whoever wanted to thank. Which was sometimes other people that were there as participants who were supportive of them at a difficult time or whatever. And some of the staff. I think we had about 11 staff members.

But anyway, very often, many of them would start to say things about me. And they would say, "Oh, you saved my life," and "You have no idea..." And they would say all these nice stuff to me. As I said, I grew up, my whole self-image growing up, up into my 30's was, I'm an [censored]. People don't like me. I'm a lot of problem for people and that sort of stuff.

So when people started saying these stuff, this was a number of years into me using Holosync and I was a lot different person. But I still hadn't kind of changed that self-image completely. I would start to cry because of the people would be seeing me that way was just kind of

unbelievable then.

Now I've been doing this... Centerpointe is 27 years old. It's 31 years if you count the time when we were experimenting. And a lot has happened since then. And I'm kind of more used to it now. But you're right. It's like, "Wow, this is so amazing that I get make my living in this way." I'll go speak somewhere and people will be passing in the hall outside the meeting room. And they'll say, "Oh, you're Bill Harris. Oh, my God, you saved my son's life!" And then I'll walk ten feet more and somebody else will come up and recognize me.

I was even at a Swiss banking conference in Switzerland many years ago, 2002 or something, sitting next to this guy that runs some big fund in Europe. And after we talked about that kind of stuff for a while. He said, "So what do you do?" And I started to tell him. And he said, "I'm one of your customers." So lots of people, 193 countries using Holosync.

And because it's become so successful, I have to confess, I've made lots of money. And so I give large amounts of money to a lot of charities that help kids. And so that's also very satisfying. So when people get involved with Holosync, probably a quarter of the money, after the half that goes to the government, is going to help kids.

So, anyway, that's my story. And I guess, I would say in summary, I said this to you before we started to record. There are all these things that people do to "heal" other people, to help them get over their grief or their sadness, or their anxiety, or their fear of life, or whatever, or try to develop some of those more positive qualities. And plenty of those things work.

I don't always agree with their explanation of why they work

because to me, it seems a little on the magical thinking side of things. There's a certain comfort in framing that way of some people. But once you learn all the science stuff. It's hard to describe things in that way, especially when you find out a scientific explanation for why something works.

But the big benefit of finding that out is that, then you can do what I said. You can go right to the fundamentals. So when you change the parts of the brain that are either underactive, prefrontal cortex; or overactive, the limbic system. All the stuff that you've been trying so hard to achieve just starts to happen almost effortlessly. It just sort of falls into place.

This is not a 30-day miracle or anything. But this stuff just all starts to fall into place. Like I'm a Zen monk, I told you that before we started. And I know a number of Zen Roshis, Zen masters and you see people like this. And there's something about them where you could tell they feel very comfortable in their own skin. And they just seem to know what to do. They're not sitting there second guessing, "Am I doing this right? Do people like me?" And all this stuff that most other people are doing. And that is the result of sometimes 30, 40 years of meditating many, many hours a day.

What we see with people who use Holosync is that they get to that same place in three, four, or five years. At least they start the beginnings of it in maybe two or three years. And it happens much faster. And the really interesting thing is we have people that use Holosync that have never read a single word about Eastern philosophy or the new spirituality that most of the people listening to this are probably advocates of.

And yet, I interviewed some of them in their later stages of this program. And they are describing their experience of life in the same way that Zen masters describe theirs or that the Buddha described his. They're not saying it in the same words. But you can tell, they're describing the same thing. They just don't know that there are all these other people who have done spiritual practice for centuries and centuries that have already have those experiences.

They just think, "Well, the funniest thing has happened. I just feel so much compassion for people." And somehow they can sense it because they come up to me. And they start talking to me. And they say, "There's something about you. I want to be more like whatever this is that you have."

Well, that's the same thing that happens to gurus in India. Is that people are attracted to them. They have a charisma about them. They have this shaki thing that...And I hear people describing that same sort of a thing. Or they'll say stuff like, "I don't know what it is but I just seem to know what to do and it often feels like it's not even me doing it. It's just sort of like the universe is moving me to do thing and they always turn out to be the right thing." But these are people that have never read anything about this. But they're saying those kinds of things.

Alicia: That's really cool. Yeah. No. This is great. Now, I know we're a little bit kind of running over time here. But I have to ask you this. Because you mentioned, now you primarily described the benefits from a scientific standpoint. And just so much of my own work and probably a lot of you guys listening to this conversation. There's such a beautiful bridge between the ancient lineages and the modern science.

And I'm just curious, if you could draw some of those little bridges. I know you said if you had more time, you would go through kind of some of the evolution of how that has transformed you over the years. But if you could just satisfy a little bit of that bridging, I'd love to hear.

Bill: The ancient people that wrote the Vedas and the Upanishads and Buddhist stuff, that's in the Indian culture. There are similar stuff that happen in China and the Himalaya area, and that kind of stuff. They could see that life really is full of suffering.

Suffering is built into being human being. Partly because things are impermanent. But for other reasons too, which we don't have time to go into. So I don't know how they hit on these different spiritual practices. But those spiritual practices change the brain. They calm the limbic system. They enhance the prefrontal cortex.

One of the things they didn't talk about that I talk about a lot is awareness. One of the things I often is awareness creates choice. What you do outside your awareness automatically is not a choice. It just happens however you were programmed by your early life experiences. But once you have enough awareness to observe how you're creating, how you feel, how you behave, which people in situations you attract or become attracted to you, and what meanings you assign to what happens then those things start being a choice.

You drop doing things that you have been trying to drop forever, but couldn't. Because you can't do something that doesn't serve you with awareness. If you do something that doesn't serve you with awareness, it falls away. Without any effort. It isn't like you tried or anything. So I often

say awareness creates choice. And meditation, and better yet, Holosync, creates awareness.

So these guys figured out ways to become more aware. And of course, this was pre-science, pre-modern times. They created their own explanation for why this was happening and what was going on. And it's very charming and very beautiful. And it is an explanation that works at that level of development.

Now the scientists are just describing the same thing. They're just describing how this three and a half pound universe between your ears creates all this stuff. And of course, it's connected to your body too. It's not just your brain. It's your brain and the mind is sort of more... The brain is the organ. The mind is kind of the awareness that we have that it creates the thinking and the feeling and all that sort of stuff. And obviously, this all affects the body too.

So there is a bridge. Somebody long ago figured out if you created a vehicle with wheels, it was way easier to get around than pulling a sledge behind you or something like that or whatever they were doing before, or carrying on your back. So it's not a big surprise that even spiritual practice, science can find ways to improve it.

There are certain supplements that if you take them when you meditate, your meditation is better and your brain changes faster. You mentioned that I was in *The Secret*. I've often said, "To my utter shame, I was in *The Secret*," because, see, the people that are little more in the know heard *The Secret* and it was very motivating to them. And they said, "Yeah, it all starts with the way you think."

So the thing is you can't think those positive thoughts if your limbic

system is overactive. You'll be in fight or flight. You'll be thinking about fighting or fleeing and the danger and all that kind of stuff. So Rhonda Byrne, bless her heart, she actually believes that all you have to do is put it out in the universe and a pony will show up on your doorstep.

And I once had a conversation with her where she was talking to somebody else and I kind of overheard them and I walked up because I knew both of them. And she said, "Oh, no." I said, "You have to do something. You have to take action." And she said, "Oh no, no. All you have to do is put it out in the universe. Everything will be taken care of."

See, that's fine for the people like you who know how things work. I'm sure that everything you've achieved is because of something you did. And part of the reason you did it is because you got your head straight first.

I have many people write me letters and say, "I decided what I want. And I wrote it on a piece of paper. And I put it on my altar. And I've been putting it out to the universe that I want this, every day, twice a day for six months. And nothing has happened. What am I doing wrong?"

You see, they actually believe that it's magic. And that all you have to do is think it. See, the real law of attraction is actually that -- like if you want to make money. Who do you give money to? The electric company. The gas station. The supermarket. Everybody you give money to has something you want more than the money. So if you want to make money, you've got to create value that other people will trade money for. That's the law of attraction.

If you want somebody to love you, you have to be loving enough

person that somebody says, "Wow, I want to be loved by Alicia. I'm going to be really loving to her." And that the real law of attraction. It's not just about thinking, "I want this. I want this," and then the wish fairy floats down and gives you something.

But you see, it's cruel to tell people, that are lost in this way, that all you have to do is wish. The people that are smarter, they didn't even notice they missed that part of taking action, because they thought, "Well, duh, of course you have to take actions."

So I don't forget how I got on this. So if you're asking me about the difference between...I guess it's because I'm sort of a crusader against magical thinking because as soon as people start thinking they're going to change the laws of the universe or the laws of physics, the laws of science with their mind, they get into trouble because that's not how it works. And you spend a lot of time trying to make something happen that isn't going to happen.

It's better to really learn how things really work and then utilize that information because then you can really get some good results.

Alicia: So then tell us, how does getting the mind right help propel better health? Because most of our audience here is looking to self-heal and kind of take their power back. So what kind of, just as we're wrapping up, last words you have on that?

Bill: Well, I can go at this from the limbic system perspective or the prefrontal cortex. The limbic system, as I said, creates fight or flight. It creates all these very damaging stress chemicals, which are supposed to be just to mobilize your body for a very short period of time while you're running from the

saber-toothed tiger or the person that pulls a knife on you in the alley or whatever, something like that.

But when people are making those stress chemicals all the time, because their limbic system is very overactive, then you have inflammation in the body, which creates all these problems. The big three, or inflammation, glycation, and oxidative stress, in terms of physical health. And there's some genetics that enter into it too. But most of the diseases people have, most of the troubles they have go away—unless it's a genetic thing or something—they go away when the limbic system gets really calm.

Then on the other side, if you look at the prefrontal cortex. What do you need to do to really have a healthy, satisfying life? Well you need to sleep the right amount and sleep well. You need to eat a certain kind of diet. You need to meditate. And you need to exercise. And maybe some other things that I probably could mention, too. But those are the biggies.

Most people have trouble disciplining themselves to meditate, because their prefrontal cortex isn't strong enough to override the limbic system. Most people have trouble sticking to their resolutions about the diet that they're going to eat. Most people are too stressed to sleep well. And all of those things that you need to do to meditate, to exercise, to eat right require will power. I go back to the marshmallow test.

The ones that had a small limbic system and a robust prefrontal cortex, they were healthier. And most of them probably didn't know the things that the people listening to this know about health. These were just sort of your average people that some of them may have known some of the stuff that you know about health.

There are all punch of information now about eating high fat, low carb, and all that sort of stuff that's very innovative stuff. Most of these people weren't even doing that. But just because they had a strong prefrontal cortex and a calm limbic system, they ended up being healthier.

You can do the lifestyle things that you need to do with a strong prefrontal cortex. Without a strong prefrontal cortex, you will struggle with exercising every day, all those things. You'll procrastinate. You'll make excuses. "I don't feel like it today," all that stuff. I've been there. So are probably everybody that's listening.

This is what I meant when I said you get your brain right, and all this stuff becomes easy. You don't have to go through all this stuff to be confident, or motivated, or to take action, or whatever because it's sort of like some of the people that are teaching this in a more metaphysical way, they say, "Your birthright is to be happy. Your birthright is to be rich. Your birthright is to be healthy." Well, it is. When your brain works right, all that stuff just happens.

My good friend, Dr. Daniel Amen -- I'll end with this -- he says something that is so simple, that's so true. And his first book was named this, and he has an updated edition of it now, *Change Your Brain, Change Your Life*. And sometimes I say, "Love your brain. Love your life."

So anyway, if people want to use or try Holosync, we'll put a link below this so that they can go and participate in that little five-day challenge, which you don't have to do it for five days. You just do it for once, if you want to. But you'll probably want to.

And also, I guess we could also put a link, they can go to Centerpointe's home page. And right at the top, there's a link. You get a free copy of my new book. It's not that new now. It's about 15 months old. But it's called, *The New Science of Super Awareness*. And it's about all of this brain science stuff and the practical application of it.

I'm actually working on a novel *National Geographic*-quality documentary, where I've interviewed many of the top neuroscientists. And also the people that are creating tools using what they've discovered to help people to do all the things we're talking about.

So anyway, I hope people will give this a try. I can't take responsibility for the fact that Holosync is amazing, although I did sort of tweak what I was doing to make it as effective as possible. And we have a lot of support we provide for people and all that. But Holosync is really amazing. It totally saved my life. I'd still be an [censored] without Holosync.

And see what a nice guy I am now?

Alicia: So generous, yeah. Thank you, Bill, so much for contributing to The Soul of Healing Summit, for sharing your wisdom with us, for sharing your scientific and metaphysical perspective on how this all comes together. I think you really shared some really powerful points that are just very refreshing and just real. So such an honor to have you.

And I want to encourage each of you listening to check out Bill's website. It's centerpointe.com, pointe is spelled with an E. So centerpointe.com, where you can learn more about Holosync meditation and all of his other offerings that his company has created.

Bill: We should just put two links down there because this five-day challenge where you can sample Holosync. I think we're doing a test right now where there's a button on the regular website that says, "Try Holosync now" or something. And half of them are going to one thing and half of them are going to this five-day challenge, which is what I think people should do.

Alicia: Okay. We'll make sure everyone has everything that they need to connect with you and move forward. And we'll take care of those details. So, all right. Well, thank you again, Bill. And again...

Bill: It's very lovely. And I'm sure that people are getting a lot of benefit from the fact that you're alive and walking around on earth. So thank you.

Alicia: Thank you. Thank you so much. Take care, everyone. Again, this has been Bill Harris and Alicia Lynn Diaz with The Soul of Healing Summit.



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